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IRISH OPINION ON THE HOME RULE BILL.

THE value of Irish opinion on the Home Rule Bill is twofold: first, it has the force of skilled testimony as to the merits of the measure; secondly, it is a factor in the making or marring of the future. In criticising the Ulster Convention of last year Mr. Morley, as I ventured to observe a little later at the Convention of the Southern Provinces, made a singularly academic remark: not one new argument, he said, was advanced against Home Rule. The men of Ulster did not assemble to enter on a debate and a discussion. They had come to their conclusions; they gathered together to declare their convictions and to formulate their determination as to a line of action. They constituted in their own persons a formidable basis of reasoning against any Separatist scheme. Each of the twelve thousand delegates was a living argument, the logic of which must in the end prove irresistible. If Mr. Gladstone's Bill were the best Bill conceivable, instead of the worst; if it were drafted at the dictation of eighty loyal and sober-minded subjects of the Queen, instead of eighty men whose wisdom is the wisdom of New Tipperary, whose honesty is the honesty of the Plan of Campaign, whose mercy is the mercy of the boycott enforced by the midnight bullet, it could not be made to work in opposition to the closed ranks and unfaltering determination of a million inhabitants of Ulster. A portentous experiment in constitution-mongering would have to be made under conditions which foredoom inevitable failure. There is much logic, though it may not be of the academic kind, in the resolute declaration of loyal Ireland—"We will not have Home Rule." I was present at Mr. Balfour's magnificent reception in Belfast, and I mingled in the crowd. It was a great popular uprising. Artisan and capitalist, peer and peasant, tenant and landlord, Liberal and Conservative, masses and classes stood side by side and shoulder to shoulder. Here, indeed, a United Ireland became a visible and living fact. Of the two Irelands, one at least was solid and welded into unity; the other Ireland seemed ambitious to demonstrate its

"fissiparous tendency." Mr. William O'Brien, amidst Nationalist cries of "Here comes the bogey man," and guarded by policemen, was exhibiting in public the distractions of "rebel Cork."

Apart from its worth as an indication of future action, the testimony of Irishmen has a value as expressing the opinion of those who are well-informed, of those whose interests are bound up with the land of their birth, of those who have striven for its prosperity, and who cannot but desire its welfare. Let us first hear the voice of commerce. I shall not enter into the arguments that have been advanced, though they can well bear the strictest scrutiny; my appeal is to skilled testimony; and it is by the evidence of testimony, let it be remembered, that many of the most important acts of our lives are determined. We have before us the collective testimony of public bodies and the individual testimony of persons whose position and past history specially qualify them to form a just estimate of facts and probabilities. The "propertied classes," Mr. Gladstone admits, are against the Bill; their testimony is discounted as that of moneyed worldlings whom impending change has struck with dismay. But these are the men who have made a career for thousands of the toiling masses; the shipbuilding leaders of the North are backed by the men of the shipbuilding yard, the linen manufacturers are backed by the workers of the frames and by the men who heckle and spin and bleach; Mr. Gladstone's classes and Mr. Gladstone's masses are at one in their hostility to a measure shaped by a Cabinet where the "classes" assuredly are not without full representation.

The Report of the Council of the Belfast Chamber of Commerce on the Government of Ireland Bill has been widely circulated and read, but it is not always borne in mind that an alternative policy to Home Rule is advocated by these representatives of Northern commerce. There is no alternative, say Mr. Gladstone and his faithful echoes in the House, except coercion. There is an alternative, replies the Chamber of Commerce; and they add that the Home Rule Bill itself means coercion—coercion not of moonlighters and cattle-houghers, but coercion "directed against those who have done most service to Ireland, the most industrious, the most law-abiding, the most faithful and dutiful subjects" of the Queen.

"We are of opinion that the reasonable wants of Ireland would be fully met by any mode of dealing rapidly and simply with the Land question, consistent with justice and honour; by some arrangement for Local Government similar to that lately created in England and Scotland; by an adequate reform of Private Bill Procedure; and by such aid from Imperial credit as would in a sensible and economic way assist the development of Irish industries, where and when such assistance might be required.

"We conclude by re-stating, as broadly and firmly as possible, our opinion that the circumstances of Ireland—the peculiarities of its population—its poverty and absence of natural resources—render the experiment of autonomy exceptionally dangerous, and we anticipate from such an experiment absolute

disaster; that the Bill as drawn is radically and incurably unjust; and that, should it become law, the result would be a blow as deadly to Irish commercial interests as were the measures framed centuries ago intentionally to ruin Irish trade."

No individual witness from the Belfast Chamber of Commerce can be cited who speaks with greater authority than Mr. Thomas Sinclair, formerly a devoted follower of Mr. Gladstone. "There would be absolutely no security," he says (February 21st, 1893), "for trading interests. . . . There was no doubt the fiscal arrangements of the Bill would be most injurious to their commercial interests. . . . The agricultural interests, commercial interests, and the interests of retired persons who lived on their savings were imperilled in the utmost degree by the unlimited methods of taxation given to the new Parliament." Let us add certain words of the Lord Mayor of Belfast (February 28th, 1893):—"If any such Bill were ever carried, he believed it would be the greatest calamity that ever befel their country, and would lead to the complete separation of Ireland from Great Britain." At the same meeting which listened to these words of the Lord Mayor, Mr. Bradshaw spoke as representing the working classes of Belfast. "If the nefarious Bill became law," he said, "it would drive away their employers and destroy their industries."

The resolutions adopted on March 20th by the Linen Merchants' Association reaffirm their unanimous declaration of May 5th, 1886, "That our national interests are identical with those of England and Scotland, and that no greater measure of self-government is desirable for Ireland than for the other portions of the United Kingdom;" and they go on to declare their "solemn conviction that the proposed legislation would prove disastrous to the manufactures, trade, and commercial credit of Ulster, and that our particular branch of industry, which occupies the leading position in the province, would be seriously, if not fatally, injured thereby." Irish woollen manufactures of the last century were destroyed by the commercial jealousy of England. Will it make amends now if in a fit of sentimental remorse the representatives of Great Britain impair or ruin the industry by which the thousands of working men of the North earn an honest livelihood?

But all the commerce, manufacture, and industry of Ireland, as our Gladstonian friends take a pleasure in reminding us, are not confined to Ulster. Leinster, they assure us, is a wealthier province than Ulster. It is worth while then for them to attend to the voice of industry in Leinster. The Dublin Chamber of Commerce is not an insignificant body: it has twelve hundred members; and they cannot suffer under the reproach, as Mr. Gladstone seems to conceive it, of being Protestants, for the President and nearly one-half of the members are Roman Catholics. "We are," says Mr. John

Wigham, the Secretary of the Chamber, "unanimous in our view that Home Rule will inflict a deadly blow on commercial interests here." The Council of the Chamber has expressed its mind in a resolution (Feb. 27th, 1893), since reaffirmed in an address of welcome to Mr. Balfour. The Bill of 1893, the Council declares, "fully bears out the opinion heretofore publicly and repeatedly expressed by the Chamber, that any measure tending to disturb the Legistive Union at present existing between Great Britain and Ireland would injuriously affect the commercial interests of both countries. The provisions of the Bill, especially those relating to finance and taxation, are unjust, and would be oppressive, introducing complications and confusion, not only into the internal trade of Ireland, but into her commercial relations with the rest of the Kingdom, the effects of which must inevitably prove disastrous to both countries."

On March 10th an address was presented to the Unionist leaders by a deputation of more than fifty of the leading mercantile men of the three Southern provinces. It included the Governor of the Bank of Ireland, the chairmen and directors of railways and steamship companies, the great distillers and brewers of Dublin, and others who are entitled to speak with unquestionable authority for the trade and commerce of the South. In their address they declared their unanimous conviction "that the Home Rule Bill now before Parliament will, if passed into law, arrest the growing prospects of Ireland."

"We are all personally concerned and vitally interested in the development of the industries of Ireland. We know that for that development, and for the happiness and prosperity of the Irish people of all classes, a steady and just government, with equal rights and equal liberties for all, is before all things essential; and we hold with unhesitating conviction that the 'Government of Ireland Bill' offers no prospect of either equal liberties or of just and steady government. . . Its whole scope appears to us radically unjust, and certain to promote neither peace nor progress in Ireland. The proposed scheme of a separate Legislature gives enormous powers for mischievous interference with individual and corporate rights, qualified only by artificial and impracticable limitations. The special safeguards devised for the supposed protection of minorities seem to us likely rather to intensify and embitter party animosities than to allay them."

Add to this weighty pronouncement the evidence afforded by a petition signed by sixty-three out of the sixty-six members of the Dublin Stock Exchange (*Irish Times*, March 18th). These gentlemen, if any, feel the pulse of Irish enterprise; and Irish enterprise means life, and hope, and cheer for the poor man as well as prosperity for the rich. The Bill, they assert, if passed into law, "will be disastrous to the trade and commerce of this country; credit will be destroyed, and all enterprise paralysed."

"The pursuance of their ordinary avocation places your petitioners in a position to form a just and reasonable opinion as to the effect of this measure upon the very large amount of capital—almost entirely Irish capital—em-

barked in the various commercial, industrial, and financial undertakings in Ireland.

"Your petitioners can testify that immediately previous to the introduction of this measure these undertakings generally had reached a degree of credit and prosperity never before surpassed, but the publication of the conditions and full text of the aforesaid Bill created an intense feeling of alarm amongst holders of all classes of securities in Ireland, resulting in a depreciation in their market value to the extent of several millions sterling. This unrest has since, to some extent, been temporarily allayed by the opinion gaining ground that the measure may not become law.

"Your petitioners include men of various religions and political opinions, who could not possibly have joined so universally in this petition had not their experience so seriously impressed them with the dangers to be apprehended from the passing of a Bill so framed as that now under consideration."

The Dublin stockbrokers assuredly do not look forward to that "chronic plethora of money" which exists only in Mr. Gladstone's sanguine imagination.

Let me present also the opinions of three or four individuals who may be taken as representative of Dublin commerce. We have not yet forgotten that Lord Iveagh was once Mr. Edward Cecil Guinness, the head of the most successful manufacturing enterprise in Ireland. "We can conceive no calamity," said Lord Iveagh (March 15th), "so overwhelming as would be the enforcement in Ireland of the Home Rule proposals now before Parliament. . . . As Irishmen, we protest against these proposals, because we know that under the Imperial Parliament alone can there be any prospect of establishing and maintaining peace and good-will among the various creeds and classes of Ireland. But we also protest against this Bill because our experience and knowledge of the country teaches us that it would be fatal to Irish trade and commerce, because it would inevitably drive capital from our shores and throw many of our working men out of employment."

As my second witness I cite Mr. John Jameson, the great distiller. "If the Bill passes into law," he says, "it will endanger the trade of Ireland, and especially the trade of Dublin. The restrictions and regulations which it would be necessary to impose in order to carry out the provisions of the revenue clauses of the Bill, would act as a barrier, and affect every branch of commerce in this country. Every bale of merchandise sent to Great Britain would have to be opened, and every passenger travelling over to England have his luggage examined and opened. It would create a state of things which would cause the separation of Ireland from Great Britain, which would be most disastrous to the interests of both countries. If this Bill passes into law, many of the merchants and many of the companies now carrying on their business in this country will change themselves and their business to the other side of the Channel.[1] . . . I can see nothing but misery and disaster from this Bill. It will affect every

(1) As I transcribe the above, the prospectus of a large Irish company comes to me —that of E. & J. Burke—with a proposed capital of £1,200,000. "One of the advan-

member of the community, but the people who will suffer most from it will be the poor."

Next I summon a great Irish contractor, Mr. Robert Worthington, who, between 1887 and 1893, completed nine railways, situated in the counties of Cork, Kerry, Kildare, Mayo, and Galway, at a net cost of £645,459, and who at present is engaged in projects amounting to £814,000. The Home Rule Bill is described by Mr. Worthington as "a measure that bears on its face fraud and ultimate bankruptcy of the country." "I am told," he writes, "the Bill will be amended in committee. I could understand that argument if it were capable of being amended, but the foundation is so radically defective, that no sound superstructure could be placed thereon. . . . There are few men in Ireland who have a better opportunity than I have of knowing the real feeling that exists in connection with this measure, and I can unhesitatingly state that it is one of distrust and disapproval amongst all sections of the community, and its withdrawal would be universally hailed with satisfaction."

I will cite also the testimony of a Roman Catholic, Colonel Dease, formerly Governor of the Bank of Ireland, a director of the Great Southern and Western Railway Company, and Chamberlain to his Excellency Lord Houghton. "I appeal to all of you who are against Home Rule in any shape," he said, addressing the loyalists of Kildare, "to oppose this Bill by every means in your power. I appeal to any of you who are in favour of a just measure of Home Rule to repudiate this Bill, because you ask for bread and are offered a stone—ay, a stone that once around your necks would soon drag you and our country under water, and leave Irish patriots the laughing-stock of nations, if they accepted such a thing."

The opinion of many Nationalists is quite in harmony with that of Lord Houghton's Chamberlain. Sir Joseph McKenna, perhaps their best-informed financier, Mr. Pierce Mahony, Mr. John Redmond, and the Lord Mayor of Dublin have expressed themselves with hardly less strenuous hostility to the financial arrangements of the Bill. "On the whole," says Mr. Clancy, M.P., "the plain English" [alas! that a patriotic Irishman should ever speak in "plain English"!] "of the financial clauses is that, if they were enacted as they stand, Ireland would stagger to financial destruction from the very start. . . . She would have no surplus, and not only could the Irish Government do nothing to improve the material condition of the country, but it could not even pay its way, though it indulged in no extra expenditure, without an intolerable increase in the general taxes. Having no surplus, it would have no credit, and it could

tages of the company," the prospectus significantly informs the public, "is that its business in the United Kingdom can be effectively carried on in either Dublin or Liverpool."

neither borrow money itself nor lend it to local bodies, except at ruinous rates of interest, if it could do either the one or the other at all."

Mr. Asquith, in the speech of a rising member of a young men's debating society, asserted that the objections alleged against the financial clauses of the Bill are absolutely destructive of one another, "because we are told on the one side that the scheme is unjust to Great Britain, and at the same time that it is ungenerous to Ireland." And he triumphantly asks how both these propositions can be true at the same time. A distinguished Irishman, who is eminent not as the clever member of a debating society, but, among many other eminences, as one of the chief financiers of the Church of Ireland, the Provost of Trinity College, had anticipated the criticism of Mr. Asquith. The war indemnity of £17,000,000 which England is to pay for the privilege of *not* getting rid of Ireland is "a great deal too much," said Dr. Salmon, "for England to give, and not half enough for Ireland to get. Does that appear to you paradoxical? If a wife demands a separate maintenance from her husband shall you be surprised to find that the two establishments could not be maintained as cheaply as one? Would you be surprised if it appeared that a proposed allowance which the husband might regard as a far too serious diminution of his income was deemed by the wife quite inadequate to maintain her in the position in life to which she had been accustomed? Would not her fears be well grounded if she were quite inexperienced in the management of money, and were surrounded by a tribe of greedy retainers, with whom her own inclinations would dispose her to deal with great generosity." There is both wit and wisdom in the Provost's parallel.

I turn from commerce to hear the voice of the Churches; and here again I shall cite the collective testimony expressed in resolutions or petitions, and the testimony of individuals well-qualified for forming an opinion. In 1,190 parishes of the Protestant Episcopal Church a protest against the Home Rule Bill was adopted; from among 14,000 or 15,000 select vestrymen who gave their votes the dissentients numbered 20 persons. These estimable cranks (and I am bound to respect minorities) could literally fit *en masse* in the inside—as the Archbishop of Dublin has put it—of a moderately-sized tram-car. Our Protestant Home Rule friends in Ireland have been singularly modest in referring to their numbers. If they formed one per cent. of the Protestant population what glorying and mutual congratulations there would be! What rapture of demonstrations and the joy of speechmaking! As a fact, they constitute an unascertained fraction of one per cent., and it needs a very powerful lens indeed to discover the Irish Protestant Home Rule party under the microscope in the political world. Yet they supplied in former days to the

Nationalist movement an Emmett, a Davis, and a Parnell; we may assert with some pride that no inconsiderable part of the brains and the courage of the revolutionary movement lay in this fraction of one per cent. Mr. Gladstone ought surely to qualify his hostility to Irish Protestants for sake of the three righteous men who have fought against or hated England.

The resolutions of the General Synod of the Church of Ireland, having expressed a condemnation of the whole tenor of the Bill as "charged with dangerous elements of revolutionary disturbance," and "destructive of those most sacred bonds by which society is held together," proceed to formulate the chief objections in detail. The risk of international troubles caused by an Irish legislature, alien in sympathy and possibly adverse in action to the Imperial Parliament, is first dwelt on; the retention and the exclusion of the Irish members are shown to be alike, though in different ways, open to fatal objections; the injury to commerce; the illusory nature of the proposed safeguards, the jerrymandering of electoral areas, the grave perils to religious and civil liberty in Ireland, are each in turn brought forward. "We believe," declares one of the resolutions—a resolution proposed by the Archbishop of Dublin—"that all parties in Ireland would even prefer a measure of total separation, with all its risks and evils, rather than consent to the ignominious terms of apparent independence and actual political vassalage offered under this Bill."

Addressing a great assembly of lay and clerical members of the Synod, the Primate spoke of the grave injury to the Protestant faith in Ireland which was certain to be wrought if the Bill should pass into law. "In the first place," he said, "that Bill will check all progress in Ireland, social, moral, and commercial for very many years to come; secondly, it will suppress the right of civil and religious liberty, rendering it intolerable for our poor Protestant scattered congregations in the South and West to exist there; thirdly, it will violate the rights of property, whether private or public, or even corporate, and I venture to think the storm will break first over the head of our honoured University." Who that has read the evidence on the Meath Election petitions, or the more recent statement of Cardinal Logue as to the inclusion of politics in the sphere of morals, can doubt the very real dangers to freedom of opinion and of action from an ecclesiastical domination? But the "No popery" cry was not the cry of the Protestant Synod. "If it were a 'No popery' cry," said the Bishop of Derry (Bishop Alexander) in his eloquent address,

"I for one would not stand upon this platform (cheers). There are many earnest and noble-minded Roman Catholics to whom I could trust anything (applause). There are many of them whom I love. They have prayed for me, and I have prayed for them, and one word disrespectful of them I never will utter (applause). But I tell you what this cry is—it is the voice of 630,000

Churchmen, with some twenty or thirty exceptions; it is the voice of about 550,000 Presbyterians (applause), and other forms of Protestantism; and amongst them there are multitudes of men who, I know, were Mr. Gladstone's warmest adherents up to the last General Election. It is the voice of trade, it is the voice of commerce, it is the voice of capital, it is the voice of our chambers of commerce, it is the voice of our great seat of learning, it is the voice of all that thinks and works. . . . I really did not know that amongst the Liberal party there were many political Sangrados who would cure a sick country by blood-letting. . . . I did not know that there were humanitarians who would not, for all the world, take on their soul the guilt of causing a single drop of blood to be shed for the honour and glory of the Empire, but who are willing to shed whole streams of blood—to flood all Ulster with blood. . . . If human words convey anything, this new constitution is in other words a new ascendency."

The Provost of Trinity College at the same assembly of the Church Synod described the Bill—and described it justly—as "a Bill for the political annihilation of the Protestants of Ireland." He spoke strongly on this point, but not a whit more strongly than an eminent Home Ruler—Sir Charles Gavan Duffy. We cannot get responsible government, says this Home Rule statesman, without two parties in the state, one of which shall be ready to take the place of the other; but under the Bill there would be the perpetual dominance of a single political party; and "mark you this," Sir C. Gavan Duffy concludes, "if you have not responsible government you must have party despotism." In the same sense Dr. Salmon spoke.

"Government newspapers," he said, "are fond of representing us as struggling for ascendency. They must have got their history from books written fifty years ago, and have been asleep during the progress of modern changes. Ascendency is gone long ago, and has been replaced by equality. What is now demanded is to get rid of equality, and to replace it by a perpetual counter ascendency. . . . To give to one side [by the jerrymandering processes of the schedule] a majority so overwhelming that no political vicissitudes can ever affect it, is really to constitute tyranny. I verily believe that we should be no worse off if Messrs. Dillon, Sexton, and Healy were constituted a triumvirate with absolute power over us than if we were given a legislature in which we should only be allowed a small handful of members to make an unavailing protest against the acts of injustice that would be committed."

Very admirably Dr. Salmon answered the optimistic question of the Gladstonian orator, "Why not *trust* your fellow-countrymen?" To trust to others the use of political power in our affairs is "directly in the teeth of all the political lessons we have been learning for the last couple of centuries." Why should not the people trust their interests to the Sovereign? Why should not the middle classes trust an aristocracy? Why should not the working men trust the middle classes? Why should not the agricultural labourers trust the artisans of the great towns? And if one class of voters, said the Provost, refuse any longer to trust their betters, "why must we be called upon to trust our worsers?" Precisely in proportion to our respect for honesty and humanity we become unable to trust the promoters of the boycott, and the devisers of the plan of campaign.

A word as to the persecution of the minority. We are assured that the days of persecution are past; and it is true that the thumbscrew and the rack are obsolete instruments of torture. But the resources of modern civilisation have replaced the old processes of torture by others more slow perhaps in their operation, but hardly less ingenious, less cruel, or less efficient. The thumbscrew was after all only a species of refined pressure with a view to moral ends; the rack was only a process of muscular tension, aiming at a graceful elongation of the person; and the boycott is nothing more, we are told, than "exclusive dealing." I notice, as I write these words, a letter in the *Times* from an eminent Nonconformist, the Rev. Hugh Price Hughes, complaining of the grievous injustice done to his sister as lady-principal of the Hall of Residence for Women Students at the University College of Bangor. She is an Episcopalian and a Conservative, and her brother, a Wesleyan and a Liberal, complains of the tyrannous injustice in her case of a Nonconformist majority. It is surprising that the Rev. Hugh Price Hughes does not trust his fellow-countrymen and his co-religionists. Multiply the case of Miss Hughes, as stated by her brother, ten thousand times, and you get some notion of what will inevitably take place in Ireland under the passionate priestly domination of which examples are patent in Bishop Nulty's pastoral, and the clerical violences of Meath. Or is the Roman Catholic conscience so much more tender than the Nonconformist conscience of Wales, that the newer forms of social persecution will be unfelt in Ireland? The experience of recent years, as known to us who live in Ireland, hardly justifies that generous faith in Roman Catholic priests and bishops, as though they were born with a double dose of supernatural grace. I confirm my own words—those of a Protestant—by words of the Hon. Gaston Monsell, a Roman Catholic layman:—

"When crime and outrage disfigured the country," he asks, "when the most foul assassinations were of daily occurrence, when Martin was murdered on the steps of the presbytery, when the plan of campaign and boycotting scourged rich and poor, when the Rescript was laughed to scorn by Messrs. Dillon and O'Brien, where were the denunciations of the bishops? Oh, it is easy to sit upon a small body of men! It is dangerous to grapple with the masses."

I turn from the select vestries and the general synod of the Protestant Episcopal Church to hear the voice of those churches which in England would be called Nonconformist. On March 28th the executive committee of the Irish Congregational Union called upon the members of their church to embody their protest as Congregationalists against the Government of Ireland Bill, in the form of a petition. In the event of the Bill becoming law—so runs the petition—"serious injury would be inflicted upon many of the prosperous and loyal sections of the community. This being our

firm conviction, based upon intimate acquaintance with the actual conditions of life here, we earnestly appeal to our brethren in England, Scotland and Wales to do all in their power to avert the danger that threatens us." The United Presbyterian Church of Scotland has a Presbytery in Ireland—a fact which is not always remembered—and this Presbytery on February 28th uttered its emphatic protest against the Bill. "We believe," the resolution declares, "that the Government proposed to be established in Dublin would be certain to endow the Roman Catholic Church and schools, and greatly to intensify the antagonism now existing between the two peoples inhabiting Ireland."

The Presbyterian Church of Ireland, flouted by the Prime Minister in a manner wholly without precedent, has so lately, through a deputation, brought before Mr. Balfour and Mr. Chamberlain the resolutions unanimously adopted by the General Assembly that it may seem superfluous to refer to them here. But the profound hostility of the Presbyterian Church to the Home Rule Bill is a cardinal fact in the political situation, and it cannot be passed by in silence. Strongly attached to the constitution of the United Kingdom, the Presbyterian Church announces its determination to resist every attempt to destroy the Legislative Union at present existing. It proposes as an alternative to Home Rule not coercion but the abolition of the dual ownership of land, which only the Imperial Parliament can with justice effect, combined with a proper scheme of local government. It formulates in a series of propositions its objections to the Bill, of which I shall cite only the first :—

"The measure seriously imperils our civil and religious liberties, inasmuch as it would deprive us of the protection of the Imperial Parliament and Government, under which our persons and property are safe, and our religious freedom is secure, and would force upon us instead an Irish Legislature and Executive, controlled by men declared to be "marching through rapine to the dismemberment of the Empire," whom a Special Commission found to be guilty of a criminal conspiracy, and who have supported, and still attempt to justify, the iniquitous and criminal organisation of the Land League, the Plan of Campaign, and the system of boycotting. Since the Imperial Parliament has in the present generation abolished religious ascendency in Ireland, placing all denominations on an equality, we are painfully surprised that a project of law should now be entertained under which one race, party, and creed would always dominate, and which would inevitably result in a new religious ascendency of a most objectionable character. Our conviction as to this result is amply confirmed by the arrogant claims of the Roman Catholic Hierarchy to control the members of their Church in the exercise of their political rights shown by recent election proceedings in the two divisions of the county of Meath."

The slender opposition to these resolutions as proposed to the General Assembly collapsed, and the half-dozen (if they reached that number) of Presbyterian Home Rulers deemed it prudent not to challenge a division.

The voice of the Moderator of the General Assembly, before these

words are printed, will have been heard again on the subject of the Bill in the Albert Hall Demonstration of April 22nd. I prefer, therefore, to quote some words from the speech of Dr. Orr, the Clerk of Assembly :—

"Coming from that people among whom they lived and laboured, with whose convictions and feelings they were intimately conversant, and not being themselves politicians in the proper and ordinary sense of the term, he thought the deputation might fairly claim to be regarded as unimpeachable witnesses when they testified to the extreme abhorrence with which all classes of the community—artisans, labourers, and farmers, equally with the commercial and professional gentlemen—regarded this Home Rule Bill, and not only it, but every measure which would propose to set up a separate Legislature and Executive in Ireland. The Presbyterian community believed conscientiously that Home Rule in any shape would bring financial, industrial, and social ruin upon their country—(hear, hear)—that it would imperil their religion and civil liberties: that it would embitter the hostilities of rival races and creeds in Ireland, as those hostilities had never been embittered in this generation, and that it would be attended and followed by disorder and internecine strife, from which not only Ireland but the Empire would suffer, and which only the forces of the Imperial Government could repress."

The Rev. Professor Pettigrew followed with words no less weighty in statement of facts, no less expressive of a final resolve :—

"It had been said that the landlords were the principal opponents of the Bill, but the Presbyterian body in Ireland was made up of small farmers, labourers, traders, shopkeepers, merchants, and manufacturers, and yet he believed there was not a section of the community more resolutely opposed to Home Rule than was the Presbyterian Church of Ireland. There were about 621 ministers in that Church. About twenty of them were, and always had been, Conservatives; the remaining 600 were earnest Liberals, and were warm followers of Mr. Gladstone up till 1886. However, when, by espousing Home Rule, he turned his back upon all his former professions, and on every true Liberal principle at the same time, those 600 almost to a man refused to follow him, and at the present moment to a certainty 590 were ardent Liberal Unionists. The charge had been preferred against some Ulster representatives by a member of the Government that they had exaggerated the intensity of the feeling and the strength of the determination in opposition to Home Rule. The opposite was nearer the truth. It would be almost impossible to exaggerate the intensity of feeling or the strength of the determination that existed among all classes of Loyalists to resist it to the bitter end. It was not after the manner of those whom they represented to indulge in braggadocio. They meant what they said, and what they said they should do at whatever risk and whatever hazard."

Such testimony as this of the Presbyterian Church can only be invalidated by taking the word "Protestant" as a synonym for knave and fool.

The Conference of the Methodist Church in Ireland has frequently affirmed its desire for the maintenance, unimpaired and inviolate, of the Legislative Union. Since the introduction of the present Bill, the Committee of Privileges, which represents the Conference in the interval of its sessions, has given emphatic expression (March 8th) to its convictions in a series of resolutions. It is shown that there is no proved necessity for this momentous change, which would itself

be made available for more extended and more destructive changes. It is shown that the Bill, by its complicated, illiberal, and unworkable arrangements, imperils the commercial interests of the country. The dangers to religious and civil liberty are set forth in no hesitating terms:—

"That in the judgment of this Committee the Bill, if it were to become law, so far from being a message of peace to Ireland, would be a fruitful occasion of more distressing discord and strife; that, in the new state of things which it would create, the religious equality now happily subsisting would speedily be destroyed, and religious freedom be seriously imperilled; that class would be arrayed against class and party against party with a virulence now rare or unknown, and that the inevitable result would be not the amending the provision for the government of Ireland, but the overturning of all order and good government."

These resolutions of the Committee of Privileges have been followed by the Appeal to the Methodists of Great Britain, signed by almost every minister of the Methodist Church in Ireland. It declares that the question is "above all a religious question," and points to the assault upon the religious freedom of the country which would most certainly be made by the same spirit of "clerical domination which has been recently exposed and rebuked by the Meath Petitions." In a special appeal to English Nonconformists from the Rev. W. Crook, D.D., a Methodist minister of Wicklow, the writer, a Liberal and a former follower of Mr. Gladstone, declares that the Bill will "re-open and intensify the conflict between Catholic and Protestant, and exert a most disastrous influence upon Protestantism all over our land." He concludes with a citation from a journal edited, he says, by the Rev. Albany Christie, of the Jesuit Society, *Catholic Progress*:—

"The woes of Ireland are all due to one simple cause—the existence of Protestantism in Ireland. The remedy could only be found in the removal of that which caused the evil which still continues. . . . Would that every Protestant meeting-house were swept from the land; then would Ireland recover herself, and outrages would be unknown, for there would be no unbelievers with her champions."

If this, observes the Rev. W. Crooks, would not open the eyes of English Methodists and Nonconformists generally, they must be given over to strong delusion.

No document coming from Ireland with reference to the Home Rule Bill is more calm and temperate, and none is more expressive of an unhesitating decision than the address of the members of the Society of Friends to their fellow-members of that society in Great Britain. The total membership of the society in Ireland, including children of all ages, is about 2,600. Of this number, about 910 consist of children and young people under sixteen years of age, and of Friends who live in foreign parts. Of the remaining 1,690, no fewer than 1,376 signed the address; some of the others were unable to sign it owing to illness, absence from home, and other

causes. Their "carefully considered and deliberate judgment" is that the Bill, if passed into law, "will of necessity be extremely injurious to the moral and material prosperity of this country." They, like the other Protestant religious bodies, have their word to say on the dangers of the Bill to civil and religious freedom :—

"We view with increasing concern and apprehension the results which we believe must follow if the interests of the Society of Friends, as well as those of other Protestant bodies in Ireland are placed under the control of a separate Legislature, dominated in political matters by clerical rulers, whom experience has shown to be frequently unmindful of the claims of equal civil and religious liberty, and of whose modes of action the events of recent times in Ireland do not enable us to take a more hopeful view. We believe that these apprehensions are shared by many Roman Catholics of all classes, who equally with ourselves object to the proposed legislative changes. We look on the so-called safeguards which have been introduced into the Bill, with a view to the protection of the rights of minorities, as almost, if not wholly, illusory. . . . . Actuated by no party spirit or sectarian prejudice, but with earnest desires for the peace and prosperity of all around us, we yet cannot ignore many facts and circumstances of which our friends in England are necessarily unaware, and we are solemnly convinced that our rights and liberties, both civil and religious, and those of our fellow-countrymen in Ireland, of all conditions and of all religions, cannot be securely guaranteed, as they now are, under the new and unprecedented arrangements proposed to be made."

It remains to notice the objections advanced against the Bill by the Roman Catholic minority. The free expression of opinion by Roman Catholics is checked by a system of intimidation and terrorism, of which abundant evidence has been in my own hands. Thousands of signatures have been attached to the Roman Catholic petition against the Bill; but some of these have been volunteered secretly and at night; other have been cancelled in consequence of the terrified entreaties of those who signed; others have been refused by persons who desired to sign, but who declared that they would be burnt out of house and home if they ventured to do so. Servants who voluntarily signed have, on returning from chapel, announced that they must withdraw their signatures or leave their situations. There is an impression abroad among the peasantry that the names will be got at by Nationalist members of Parliament, and that those whose names are attached to the petition will be made the victims of social persecution. Notwithstanding this system of terrorism, thousands of names already stand at the foot of the petition, and among those who, in a public circular, have invited their co-religionists to support the petition, are many of the most representative of Irish Roman Catholics. It may suffice from upwards of a hundred and twenty eminent Catholics who issue the circular, to give the names of Earl Fingall, Lord Emly (Mr. Gladstone's former colleague in office), the Right Hon. W. F. Cogan, Colonel Dease, ex-Governor of the Bank of Ireland, Mr. Aubrey de Vere and his brother, Sir Stephen de Vere, Sir Percy R. Grace, a director of the National Bank, Sir Richard Martin, ex-President of the Dublin Chamber

of Commerce, Mr. Maurice Murray, Director of the Cork Distillery Company, Dr. Cruise, and Mr. Daniel O'Connell, son of the Irish "Liberator."

Beside other objections, which are common to all loyal subjects of the Queen, they especially urge the dangers to the true interests of their religion from the revolutionary spirit which, under the peculiar conditions of Ireland, Home Rule, if imposed upon the country, would foster. Mr. Asquith might here raise his debating-society point, and say that both the objections to the Bill—that it will create an ecclesiastical tyranny, and will also foster a revolutionary spirit of irreligion—cannot be true. But in reality neither of these evils is likely to come alone. The ecclesiastical tyranny would be the dominant fact; but it would call into play an anarchical and irreligious spirit, of which we see examples in Ireland no less than on the Continent, and the middle party—that of moderate and serious men—would disappear. The intolerance of religion would contend with the intolerance of irreligion; and it is this which many devout Roman Catholics dread for themselves and for their children. Following "the simple instincts of an inherited faith," said Lord Fingall, "I come by the belief that the Catholic religion is better safeguarded under the protection of the Imperial Parliament than it would be under any form of Home Rule government which Mr. Gladstone could devise;" but Lord Fingall means a devout and temperate Catholicism, not an episcopal rule in politics. As to the more general objections against the Bill we may take as one spokesman, The O'Conor Don:—"Starting with a bankrupt exchequer, forced to live by taxation of capital, the Irish Legislature would soon drive all industry, enterprise, and energy out of the country, and nothing would remain to be taxed but the unfortunate holders of land." The other witness whom I summon is Mr. E. O'Ryan, Larne Harbour:—

"I protest against Home Rule, not only for myself, but also on behalf of many of my co-religionists that dare not speak, because if they did speak, their lives might not be worth an hour's purchase, not being situated, as I am, in the midst of a loyal, law-abiding population. . . . We, loyal Roman Catholics, are conviced that Home Rule would be the ruin of Ireland. . . . We, loyal Catholics, could never submit to Mr. Gladstone's ticket-of-leave men placed in power over us in this country, and, rather than submit to them, we are prepared for the worst, and ready, if need be, to die with the words 'No surrender' on our lips."

I cannot close this summary of Irish opinion on Mr. Gladstone's Home Rule Bill without reference to my own University. Last year the University of Dublin occupied a position of honour in celebrating her three hundredth anniversary. Envoys came from all lands commissioned to bear tokens of friendship and esteem. To-day she occupies a yet more honourable position—a post of danger in the defence of justice. Every Irish interest is threatened; but

the University has the honourable distinction of being particularly designated for attack, and being struck at without reserve or a moment's delay. When Mr. Gladstone, as a zealous, though erring, Homeric student, was invited to our tercentenary celebration he replied that it would be his misfortune, and not his fault, if he were not present. We had not the pleasure of his company. He was at that time interested in seeing that his greatly reduced majority in Midlothian did not wholly disappear. But we were not forgotten by our old friend. He kept a little gift for us during many months up his sleeve—the little gift of disfranchisement. Our University alone is specially named for that distinction, perhaps (as the Bishop of Meath wittily observed) because it is the only constituency in Ireland in which all the voters can read and write. The ex-Lord Chancellor of Ireland has shown that the Bill leaves the University of Dublin open to spoliation; and meanwhile it is to have no representative in the Imperial Parliament; it is to be gagged before it is outraged. At the meeting of the University Senate (March 6th) to protest against the Home Rule Bill there was a minority which supported Mr. Gladstone's measure. The minority consisted of a solitary gentleman who had strayed back to Ireland after some years in the Antipodes, and whose brain seemed to have got a little confused while he was standing upside down on the wrong side of the globe. He exemplified with a cheery heroism a principle which he advocated—that of one man, one vote. There was no second *non placet* spoken in that great and learned assembly. "Disastrous to Ireland, injurious to Great Britain, and most dangerous to the interests of the Empire"—such is the verdict of the Senate of the University of Dublin upon the Bill.

A few days later the University graduates assembled in the same hall, and with a like purpose. Among many able speeches not the least interesting was that of a Scotch Liberal, Dr. Cunningham, the Professor of Anatomy:

"I have never before," he said, "taken part in any political movement; further, when I came to Ireland [ten years ago] I was a sincere admirer and a devoted follower of that aged politician who now seems bent upon wrecking the destinies of this country. For these reasons I believe that, to some extent at least, I may be regarded as being a more or less unprejudiced observer. . . . To a certain extent I am a believer in Home Rule, but I deliberately say that, taking into account the state of Ireland at the present moment, any scheme of this kind can only be characterised as pure madness. We hear a good deal about national aspirations, and the need there is that these should be satisfied. If these aspirations were directed towards the ennoblement and advancement of our country, as all true and patriotic aspirations should be, they would command our heartiest sympathy. But when we know that in most cases these aspirations, when literally translated, simply mean the desire of an aspirant to put his hand into another man's pocket—or, in other words, the desire of the majority to plunder the minority—our sympathy disappears. The benefit which Ireland has derived from its partnership with England is simply incalculable. In Ireland, indeed, we have many privileges which are not enjoyed by the people of Great

Britain. Having been a householder both in Edinburgh and in Dublin I can attest that in Ireland we have great advantages in the matter of Imperial taxation. . . . It is impossible to shut our eyes to the fact that the present crisis is one of deadly peril to the interests of the Unionists of Ireland. Our civil and religious liberty is at stake."

Resolutions condemning the Bill were passed by acclamation at the great meeting of Dublin graduates, without even one opposing vote.

The meetings held in Ireland during the month of March in opposition to the Bill numbered 207. The signatures to petitions against the Bill from the three Southern provinces (Ulster has preferred to utter itself in the main otherwise than by petition) number 126,000, as against the 26,000 of 1886. Such petitions as the great one from Irish Methodists are not here reckoned, in order that signatures twice attached by one person in two different capacities may be excluded. There has indeed been in the South as well as in the North a great popular uprising against Mr. Gladstone's proposed legislation.

To set against all this what has there been on the other side? One caucus of Anti-Parnellites, which styled itself a convention, in which Mr. Sexton spoke valorously and voluminously in favour of the Bill, and significantly gave warning to the landlords, and in which Mr. Healy announced that there was no finality in the measure. One gathering of Parnellites, in which, while the principle of the Bill was accepted, it was held to be intolerable in the form that it had assumed in Mr. Gladstone's Cabinet. And finally, certain resolutions in the form of a petition from the Lord Mayor and a majority of the Dublin Corporation—a petition met by a counter-petition of the Unionist minority; a petition from Home Rulers which opened by blessing the Bill in the abstract, and closed by damning it very effectively in the concrete.

Such is a fair record of the testimony of Ireland on Mr. Gladstone's Home Rule measure up to the date at which I write. A great part of the conduct of our lives is determined, as I have said, by the guidance of testimony. Can those who have no personal acquaintance with the conditions of Irish society find a better guide than the testimony of persons who are in all respects like themselves —in creed, in class, in culture (and of such we are an Irish majority) —with this difference, that they are on the spot and observe things as they are happening from day to day and from year to year? Such testimony at least deserves to be heard and considered. Or do we see the affairs of our own country too near at hand to see them aright? If so, how should Irishmen be qualified to manage their own affairs under a system of Home Rule? Why not rather invite us to manage the domestic affairs of England and Scotland, which we view from the distance that should enable us to see them in their true proportions?

EDWARD DOWDEN.

THE FINANCIAL CLAUSES OF THE HOME RULE BILL.

THE financial clauses of the new Home Rule Bill, it is not too much to say, have aroused general dissatisfaction in Ireland. Most Irishmen, I think I am right in saying, believe that the financial effects which their passage into law would involve would seriously prejudice, if they would not destroy, the chance of the Home Rule settlement proving successful. If this belief is well founded, the sooner the fact is made plain to the friends of Home Rule in Great Britain the better, for it is not credible that they would deliberately shatter their own handiwork by weighting the future Irish Government with impossible financial conditions. Hence the attempt made in the following pages to explain the objections felt by at least a considerable section of the Irish people to Mr. Gladstone's new financial scheme for Ireland, and some of the alterations that must, in their opinion, be made in it to render it satisfactory.

The first objection is that the surplus which Mr. Gladstone's Irish Budget would place at the disposal of the Irish Government would be altogether inadequate, and might prove even wholly illusory. The surplus which the Bill of 1886 provided for the Irish Government was £400,000; the surplus provided on this occasion is £500,000. Let it be granted, for a moment, that it would be a real surplus. Does any one believe that it would be sufficient for the needs of an Irish Government at the beginning of its career? If so, let him reflect on what an Irish Government would have to do if it were to effect any improvement whatever in the material condition of Ireland. The great complaint now is that, while the cost of governing Ireland is monstrously extravagant, absolutely nothing is being done, or has been done, with the exception of the carrying out of the light railway projects of the late administration, to promote or execute any reproductive works, such as the improvement of Irish harbours, the opening up of backward districts by railways and tramways, and arterial drainage, all of which are necessary to any real advance in material prosperity in Ireland, and none of which can be soon or effectually executed unless with the aid of the State. It is not alone to satisfy national sentiment that Home Rule is demanded by Irishmen, though that is the prime object of all genuine Irish Nationalists, but also to enable the Irish people to live better than most of them have been able to do under the rule of the Imperial Parliament, and grave and profound would be the disappointment if it were found after all that in respect of this latter object Home Rule was no better than

Imperial Rule. But there is another consideration. The future Irish Government, like every Government, will require to borrow, and it will be called upon, again like every other Government, to lend money to local public bodies for local improvements. It stands to reason that unless it has, at the start, a very considerable surplus at its disposal to give confidence to investors it will not be able either to borrow, except possibly at ruinous rates of interest, or to lend, except possibly on terms which would stop all local improvements or would in turn lead to increased local taxation, or even the bankruptcy of local bodies. All this would be the case even if the suggested surplus of half a million were a real one; but what if it were one likely to disappear the very first or second year after the establishment of the new state of things in Ireland? Yet, when it is mentioned that the realisation of a surplus at all mainly depends, according to Mr. Gladstone's scheme, on a steady consumption of whisky, equal at least to that of last year, and that practically no allowance is made for possible and even probable charges in respect of pensions for the existing Police and Civil Service of Ireland—the cost of pensioning both which establishments is to be almost wholly borne by Ireland, which will have at the same time to maintain a Police and Civil Service adequate to its needs—it will be seen that for any Irish Government to go to work on a basis of a surplus of half a million would be to run the most obvious risk. I do not pretend to be an authority in the matter, but it seems to me that at first, at all events, the surplus must be at least a million, and that it must be absolutely certain.

The second great objection to Mr. Gladstone's scheme concerns the form and amount of the proposed contribution of Ireland to the Imperial expenses. As to the amount—£2,370,000—I need not say much here, as what I said in the January number of the *Contemporary Review* on the contribution proposed in the Bill of 1886 applies with added force to that which is now suggested. I then showed that the former would be largely in excess of what Ireland ought to pay, if its relative taxable capacity—the only fair basis of calculation, as I submit—be taken into account; and while Ireland is now undoubtedly poorer, relatively, than she was in 1886, she is actually asked to pay more. But I ought to add that, in estimating the taxable capacity of Ireland at 1-30th that of Great Britain, I am now convinced that I made an over-estimate, and that the true figure lies farther from 1-30th than from Mr. Giffen's estimate of the relative taxable income of Ireland, which he put at 1-53rd in 1886. The contribution suggested now, moreover, like that of 1886, is actually more than the Empire has got out of Ireland for many years, with the exception of the year 1889-90. In the financial return of June, 1891 (Parliamentary Paper No. 329 of

that year), the excess of Irish revenue over Imperial expenditure on so-called Irish services was put, roughly speaking, at £2,000,000. From the similar return issued this year (Parliamentary Paper No. 93 of the present session), it appears to have been more for each of the last three financial years, but still under Mr. Gladstone's proposed contribution—in 1890-91 by over £100,000, and in 1891-92 by over £230,000. Why should additional burdens be put on Ireland now? Is Ireland, besides discharging its proper share of Imperial obligations, to pay a special tribute for the concession to it of its undoubted right to govern itself in the sphere of its domestic concerns?

But now as to the form of the Irish contribution. In 1886 it was proposed that Ireland was to pay a fixed sum which was not to be altered for thirty years. The proposal in the present Home Rule Bill is that the whole of the Irish Customs revenue should be paid into the Imperial Exchequer, and that that revenue should be accepted as Ireland's payment of her share of the Imperial expenses. This way of dealing with the matter is gravely objectionable from the Irish point of view. In the first place, if the Irish Customs revenue ever increased, as, of course, it would with the increased prosperity due to Home Rule, the resulting benefit would always go to Great Britain, never to Ireland, with the extremely probable consequence that Ireland in a few years would be paying to the Empire a sum entirely out of proportion to its proper share of Imperial expenses. In the second place, the selection of any Irish fund whatever as the source of the Irish contribution to the Empire, without at least limiting the amount to be taken out of it for Imperial purposes, would offer to any Imperial ministry such a temptation to inflate that particular fund as no prudent Irishman, recollecting the financial treatment of Ireland in the past, would care to put in its way. Mr. Gladstone's reasons for adopting the fund plan and rejecting the remaining alternative plan—that of the quota—are not, it is respectfully submitted, convincing. First, he says that, "If the Irish Customs revenue were collected on Irish account"—as would, of course, have to be done, if his present plan were not adopted—"we should be involved in an interminable difficulty as to determining how much of that revenue really belonged to Ireland, and how much of it was revenue that belonged for fiscal purposes to England." I write, of course, with great diffidence; but it does seem better to face the difficulty referred to than that Ireland should be robbed. Moreover, if this difficulty has not so far been surmounted, how can Irishmen be sure that they are not now paying and that they would not, under the fund plan, continue to pay, much more in the shape of Customs duties than they are now supposed to be paying? Again, the difficulty spoken of by

Mr. Gladstone does not, after all, appear so great as he imagines. Up to a few years ago, a similar difficulty existed in regard to the Excise duty on whisky, but in 1886 it was surmounted by an alteration in the "permit" system; that it should be so much more difficult to invent a corresponding system of keeping the Customs accounts does not seem reasonable; and, if I am not misinformed, the thing has actually been done in the case of the Isle of Man. Again Mr. Gladstone says that the Irish Customs fund "is so very nearly the right amount." That this is not so has already been abundantly shown by Mr. Giffen, by Sir Joseph McKenna, and other competent authorities. Lastly, Mr. Gladstone says: "If we adopted the method of quota"—the only alternative to which, as has been said before, is the fund method—"we should expose Irish finance to large and inconvenient shocks from changes introduced in English budgets for Imperial reasons, and we should also, perhaps, make it necessary to do what I think we are very unwilling to do—namely, to give to Imperial officers a meddling and an intervening power in relation to Irish fiscal affairs." It is submitted that the shocks to which Mr. Gladstone refers—if they meant, as I suppose they would mean, an increase of taxation to meet the Imperial emergency of war—would be equally large and inconvenient if they came in the form of a demand for a special war contribution; and, as for the meddling of Imperial officers in Irish fiscal affairs, as a result of the adoption of the quota method, it surely would not follow at all, if the Imperial Parliament would simply content itself with fixing the Customs rates and allow the proceeds to be collected, like the Excise and Postal revenues, by Irish officers.

To sum up this part of the case: the fund plan seems open to every possible objection, and has actually nothing to recommend it, at all events from the Irish point of view; while the quota has one supreme recommendation—a recommendation that counterbalances all its defects—namely, that it would ensure an absolutely fair and self-working distribution of Imperial burdens between Ireland and Great Britain. Under it, if the relative wealth or relative taxable capacity of each country were once accurately determined—a mere matter of calculation and inference from statistics already available—each would pay its just share, and no more, whether towards ordinary or extraordinary Imperial expenses. Under the other plan, Ireland would certainly be fleeced if the proposed contribution were not reduced to the proper dimensions, and would always run the risk of being fleeced even if it were so reduced.

The third great objection to Mr. Gladstone's financial proposal concerns certain provisions in Clause 10 of the Bill, regarding the main source of Irish income—namely, the Excise. Sub-section 5 of that clause says: "If the duties of Excise are increased above the

rates in force on the first day of March, 1893, the net proceeds in Ireland of the duties in excess of the said rates shall be paid from the Irish Exchequer to the Exchequer of the United Kingdom." If this is not meant as a war provision, it is difficult to see what justification there can be for such a proposal; and, even if it be a war provision, it is equally unjustifiable. It will, no doubt, be said that, the rates of Excise being uniform throughout the United Kingdom, Ireland would not pay more than its share in the event of those rates being increased to meet a war expenditure. Here is an old and familiar fallacy, of the effects of which Ireland has already had most bitter experience. It is, in fact, precisely the same fallacy as that always resorted to to defend the various increases in the home spirit duties since 1852. In that year and on other subsequent occasions when those increases took place, the plausible answer to all Irish criticisms was that no part of the United Kingdom, and no individual in the United Kingdom, was unduly favoured or unduly injured by such additions to the taxes, since everyone, whether in Ireland or in Great Britain, paid the same amount of duty for his whisky. The fact was conveniently forgotten that Ireland was the part of the United Kingdom in which whisky was chiefly manufactured, and in which it was, so to say, the popular alcoholic beverage; and so it largely came about that in the ten years from 1852, while the taxation of Great Britain increased only 17 per cent., that of Ireland increased over 50 per cent., despite the uniformity of the rates in both countries. It is manifest that under the provisions in Clause 10 a similar injustice to Ireland might again be accomplished under a similarly innocent guise. Some amendment of that provision, therefore, seems absolutely necessary from the point of view of Ireland. It may be said that the Irish members at Westminster would have the opportunity of resisting any such injustice as that suggested, but, even if they had the power to resist it successfully, it would be difficult for them to exercise that power if it were settled and agreed to beforehand that at least one way of meeting war expenditure would be by a uniform increase in the duty on spirits, unaccompanied by any provision for limiting the amount to be taken out of the proceeds to Ireland's just proportion. I may, before leaving this part of the subject, note what, no doubt, is an accidental, but still a most important, omission in Clause 10. In sub-section 3 (C) it is provided that "the Excise duties on articles consumed in Great Britain shall be paid in Great Britain, or to an officer of the Government of the United Kingdom." This provision secures for Great Britain the duty paid on Irish products consumed in England or Scotland—which, of course, is quite right. But there is no corresponding provision securing for the Irish Exchequer the duties on British products consumed in Ireland.

I now come to a different class of objections to the financial clauses—those founded on the charges which Mr. Gladstone proposes to put on the Irish Exchequer. I pass over the items of £160,000 for collection of the Inland Revenue, and of £790,000 for the Postal and Telegraph services, though, in regard to the latter, I think it can be shown—and it will, no doubt, be shown in Committee on the Bill—that it includes expenditure which is Imperial. The really serious provisions are those relating to the cost of the Police and the Civil Service. The Police item is £1,000,000 annually; that for the other civil charges is £3,210,000. Ireland is to pay two-thirds of the annual cost of the existing Irish Police while any part of that force remains, together with two-thirds of the charge for pensions, and is to pay the whole cost of the existing Civil Service in Ireland, as well as the whole of the charge for Civil Service pensions. Now, to charge Ireland with one farthing more than one-third of the cost of the Police, and one-half of the charge for Civil Service pensions would be, according to Mr. Gladstone himself, to make Ireland pay for the effects of the very misgovernment to which he is now endeavouring to put an end, for in 1886 he showed that, while the annual charge for the Irish Constabulary was about £1,500,000, an Irish Police organized on the police system of Scotland or England would cost only about £600,000, and, as to the Civil Service charge, that, while in Great Britain it was only 8s. 2d. per head of the population, in Ireland it was 16s.; and he distinctly attributed the excessive cost of the Irish establishments to the system of government then and now forced on Ireland. But the proposal is worse than it appears from the figures quoted. The provisions for voluntary retirements and for the consequent pensions and compensation would almost certainly swell both the item for the Police and that for the rest of the Civil Service to such dimensions, that even a nominal surplus of a million might disappear in two or three years after the period when voluntary retirements will be allowed. If Ireland, in view of her treatment in the past, is not to receive some temporary exemption from Imperial obligations, or other specially favourable treatment in the matter of her contribution to the Imperial expenses, then Great Britain ought at least to take upon itself its proper share of the pecuniary cost of ending the wasteful, extravagant, and demoralising rule it now maintains on the other side of the Irish Channel.

Now, the suggestions which I have so far offered may, despite the incontestable facts on which they are based, appear to some Englishmen to involve a large demand. Let me remind such Englishmen of some facts in the history of the financial treatment of Ireland by England which would, assuredly, be calculated to lead all honest men to regard even a large demand by Ireland at the present time

with favour, if such a demand were made. It is now proposed, for example, that Ireland shall contribute its share to the charge for the National Debt. Yet Ireland, strictly speaking, has not and never has had a National Debt. Not even the pre-Union debt of Ireland was Ireland's debt. That debt was about £4,000,000 sterling in 1797, and almost every penny of it was incurred by the representatives of English rule in Ireland, and for English purposes. It was created to subsidise English armies on the Continent, and to meet the requirements of a pension list which embraced, as John Philpot Curran said, "every description of men, women, and children, from the exalted excellence of a Hawke or a Rodney to the debased situation of the lady who humbleth herself that she may be exalted." Against the creation of the greater part of this pre-Union debt the patriotic party energetically protested from the very first, and I assert that the Irish nation cannot be held ever to have consented to it. The only portion of the pre-Union debt of Ireland, in fact, for which Ireland is morally responsible is the £150,000 raised on 4 per cent. debentures in 1759. Not another penny of it was incurred for Irish purposes. As to the post-Union debt of Ireland, none of it, strictly speaking, is Ireland's. It was created—I speak now of the first seventeen years after the project of the Union was mooted—for the purpose of bribing the Irish Parliament to consent to the Union, for the purpose of putting down a so-called rebellion that was deliberately provoked by English tactics, and, finally, to meet deficiencies in the Irish revenue caused by a deliberate over-estimate, at the time of the Union, of Ireland's proper contribution to the expenses of the Empire. Ireland, in other words, is now asked to pay her share of the £24,000,000 which were incurred by Pitt and Castlereagh for the purpose of carrying "the base and blackguard Union," and of the £90,000,000 which were added to the Irish debt between 1801 and 1817 for the purpose of making up a deficiency of £12,000,000 in the Irish tribute to the Empire—a deficiency which was itself caused by the fact that the sum which Ireland, by the Act of Union, was to pay to the Imperial Exchequer as its contribution to Imperial expenses was fixed in defiance of all considerations of justice or morality. In incurring the additions made to the National Debt subsequent to 1817, Ireland has really had as little share as she had in the pre-Union transactions in this matter, for the bulk of the Irish representation at Westminster during the greater part of the century was never really representative of the country. Yet Ireland is now to be responsible—and is willing to be responsible—jointly with Great Britain, for those additions, just as if they were all her own creation. Is not all this of itself a reason for treating Ireland with liberality now, when she is starting on her new career of self-government?

Take, again, the history of the overtaxation of Ireland since the Union. It seems highly expedient, in view of the appeal which has already been made to the pockets of the British taxpayer by Mr. Chamberlain, Mr. Goschen, Mr. Balfour, and other leading opponents of the Home Rule policy, and which will no doubt be repeated again and again, briefly to give some authority for the Irish contention in respect of this most important matter.

I might cite Irish authorities in regard to the financial treatment of Ireland at the time of the Union and since; but I prefer to rely on English authority. I refer to Mr. Giffen, who, in the *Nineteenth Century* for March, 1886, wrote as follows:—

"Ireland, while constituting only about a twentieth part of the United Kingdom in resources, nevertheless pays a tenth or eleventh of the taxes. *Ireland ought to pay about* £3,500,000, *and it pays nearly* £7,000,000."

He went on to explain how such a state of things occurred:—

"I ought to explain," he said, "that it is not surprising, considering the nature of our Imperial taxes, that Ireland should contribute more than its proper share, although the taxes are not merely indiscriminate, but Ireland is really exempted from some of them. The reason is that Imperial taxes fall so much on the common luxuries of the poor—on spirits, tobacco, and tea. Nearly the whole cost of the first two articles to the consumer is a tax, and the *ad valorem* tax on tea is also very high. The poor, if they are to have these common luxuries at all, must contribute disproportionately to the Exchequer. Ireland as a poor country is disproportionately taxed, although the taxes of the United Kingdom are technically indiscriminate."

Most persons will be satisfied from such a statement by such a man that a financial injustice of the very gravest kind has been inflicted on Ireland. To express that injustice in figures is a mere matter of arithmetic, and I believe that in setting down the sum of which Ireland has been robbed since the Union in the way of overtaxation at £250,000,000, I am giving a strictly moderate estimate. Generation after generation the work of taxing Ireland more and more has gone on without interruption. Before the Union the annual taxation of Ireland amounted to little more than £2,000,000; since then it has advanced by "leaps and bounds," till it is now not far from £8,000,000. Those figures, of course, of themselves would not necessarily prove that the taxation was extortionate, for if the population, wealth, and resources of the country had increased, as in England, the increase in taxation, as in England, might be justifiable. But, while the taxation of Ireland has not only increased absolutely, but more in proportion than that of Great Britain, in population, wealth, and resources the country has declined, in a lamentable degree, in comparison with Great Britain. Comparing the two countries in 1800 and in 1886 respectively, Mr. Giffen says:—

"To put the matter shortly and in the roundest figures—there can, of course, be no exact figures of income and capital—Ireland, in population, has

sunk from one-third to less than one-seventh; in gross income from two-seventeenths to less than one-seventeenth; in capital, from a proportion that was material to about one-twenty-fourth only; in taxable resources, from a proportion that was also material, being perhaps about one-tenth, to a proportion that is almost inappreciable—the proportion of only one to fifty. In resources Ireland has, no doubt, increased absolutely. The Irish people are, no doubt, much better off individually, partly because there are fewer people than there were fifty years ago, but with much the same resources; but as a community, in relation to Great Britain, there is an immense decline."

There can be no question, therefore, as to the meaning of the increase in the taxation of Ireland since the Union. What Swift wrote in his *Proposal for the Use of Irish Manufactures* might apply to the last ninety-two years as well as to his own time.

"The fable in Ovid," he said, "of Arachne and Pallas is to this purpose: The goddess had heard of one Arachne, a young virgin, very famous for spinning and weaving. They both met upon a trial of skill, and Pallas, finding herself almost equalled in her own art, stung with rage and envy, knocked her rival down, turned her into a spider, enjoining her to spin and weave for ever out of her own bowels and in a very narrow compass. I confess that, from a boy, I always pitied poor Arachne, and could never heartily love the goddess on account of so cruel and unjust a sentence, which, however, is fully executed upon us by England, with further additions of rigour and severity, for the greatest part of our bowels is extracted without allowing us the liberty of spinning and weaving them."

In face of the undeniable facts of the shameful history of the financial treatment of Ireland by England, after the Union as well as before it, to complain, as Mr. Chamberlain has complained, that Home Rule will involve an addition of one or two millions a year to the taxation of Great Britain; or to complain, as Mr. Balfour and Mr. Goschen have complained, that Great Britain, in assuming a charge of £500,000 a year for the Irish Police, will be making a present of £17,000,000 of English money to Ireland, sounds a trifle audacious as well as mean, even if we suppose either statement to be true. £17,000,000 would, after all, be but a small return for the £250,000,000 of Irish money that has gone, in the shape of excess taxation, into the British Treasury within the last ninety years.

But, of course, the story that Great Britain would lose by the transaction, even if it took upon itself not merely the one-third part of an annually vanishing charge of £500,000 for the Irish Police, but the whole cost of ending the present system of misgovernment in Ireland, is mere fiction. The fact is, Great Britain has not got all the benefit of the over-taxation of Ireland which one might expect. Its system of keeping Ireland down by force and of maintaining social order there by exceptional laws has been an increasingly expensive one. Mr. Gladstone, in his speech on the introduction of his new Home Rule Bill, proved this fact to demonstration. "The grants to Ireland," he said, "upon the average of 1833 to 1837 were

£762,000; on the average of 1888 to 1892 they were £4,042,000. That is to say, in sixty-five years there was an increase of £3,300,000, or a regular increment of £66,000 a year." "In 1886," he said again, "the civil charges [of Ireland] without the Constabulary were £3,094,000; in 1893 the civil charges are £3,892,000. The civil charges of Ireland have increased in the last seven years by an aggregate of £800,000 a year, and that gives an annual increment in these our modern days not of £66,000, but of £113,000." A comparison of those figures with the corresponding figures for Great Britain showed that in 1816 the civil charges for that country were at the rate of 8s. 2d. per head of the population, while those for Ireland were at the rate of 16s. per head. This disproportion must be even greater now. As time goes on it will continue to grow greater and greater—if Home Rule is denied. The grants to Ireland, for one purpose or another, will continue to increase in spite of the utmost efforts of British Ministers to keep them within bounds, till the couple of millions of profit which the Empire at present makes out of Ireland has absolutely disappeared. The present system of government in Ireland cannot be otherwise maintained. England cannot rely for one day even on the "loyal" minority, unless it pays that minority in one shape or another. The loyalty of that minority has always been quite conditional, and it is conditional now as ever on places being found in the service of the Crown in Ireland for practically every member of the body who is not otherwise endowed with a share of this world's wealth. The rest of the population of Ireland, in the event of Home Rule being refused, will make—and will rightly make—more and more demands for public money for public purposes, and their demands, one after another, will assuredly be conceded. Nay, the alternative policy to Home Rule—I mean the ameliorative alternative—is the spending of more and more British money in Ireland "to drive," as Lord Cowper would say, "Irish discontent beneath the surface"—a task which, of course, can never be accomplished, even though Great Britain were to descend upon Ireland, as the god did upon Danäe, in a shower of gold. In the last Parliament, for instance, Mr. Balfour, in addition to his light railway bribes, proposed to make a free grant of £600,000 for the purpose of draining two Irish rivers. Great Britain will escape all this by the concession of Home Rule, and in a few years, if not at once, the result will be most unmistakably shown in the Imperial Budget, to the utter confusion of the prophets of evil who are now making one last, and certainly not the least disgraceful, attempt to keep Ireland out of its constitutional rights by appealing to the least noble instincts of the British people.

J. J. Clancy.

IS THE UNIVERSE INFINITE?

Bishop Butler has well remarked that "probability is the guide of life," and, assuredly, if it be our guide in all practical concerns, in a still more significant sense may it be claimed as the source of the greater part of human knowledge. Indeed, in a rapid survey of the field of astronomy we are tempted to affirm, not merely that the theory of probability is of the utmost service to us, but that it is almost our sole method of discovering the truth. This will not seem a paradox to any one who will reflect that there is hardly an astronomical doctrine, even of the most elementary kind, of which it might not be said that our belief in it depends simply on the fact that its truth is, in a high degree, more probable than its falsehood. To those who are accustomed to apply the doctrine of probabilities habitually and, indeed, almost unconsciously, it affords the readiest touchstone by which many fallacious scientific notions can be dissipated. Let me give an illustration of what I mean. In the first book about astronomy which I read in my boyhood there was a glowing description of an investigation which at one time seemed to have attracted a great deal of attention. I allude to the discovery, or the alleged discovery I should rather say, of a certain "central sun," about which it was believed or stated that all the bodies in the universe revolved. This marvellous centre was becomingly located in the Pleiades—indeed, if I remember aright, it was actually identified with the star Alcyone. The doctrine was certainly a splendid and captivating one, but it was too good to be true. No one ever hears anything about the central sun hypothesis nowadays, and that, perhaps, for the simple reason that it stood condemned on the face of it by the theory of probabilities. It is wholly unnecessary at this time of day to attempt to appraise the value of the observations by which an astronomer, justly esteemed for other labours, demonstrated, or thought he had demonstrated, the existence of a "central sun." Even if the apparent movements of certain stars offered quite unequivocal testimony (which, indeed, was by no means the case) to show that they were revolving around Alcyone, still it is obvious, on a little consideration, that even this famous star could not be regarded as the centre of the whole universe without doing unwarrantable violence to all notions of probability. For just look at the facts in their due proportion. Alcyone, no doubt, is a star of magnificent dimensions. It may be a hundred or a thousand times more massive and more brilliant than our sun. Alcyone is so remote from the earth that the light which now arrives at our

eyes, even though it speeds on its way at the rate of 180,000 miles a second, has not improbably taken a century, or more than a century, to reach us. The Pleiades form a cluster of bright stars almost unique in their interest; and these circumstances might certainly render the notion that there lay the centre of the universe highly attractive to the imagination and perhaps even quite plausible. But the theory of probabilities at once upsets the whole doctrine when the facts are viewed in their proper light. No doubt the theory of probabilities has nothing to say against Alcyone in comparison with any other star visible in the heavens, but what it does say is that it would be utterly preposterous to imagine that any one of the stars in the visible firmament could be the central sun around which all the bodies in the universe revolved. For summon up to your imagination the most distant star that can be seen with the unaided eye. Then think of the minutest star that our most potent telescope can disclose. Think of the tiniest stellar point of light which could possibly be depicted on the most sensitive photographic plate after hours of exposure to the heavens. Think, indeed, of the very remotest star which, by any conceivable device, can be rendered perceptible to our consciousness. Doubtless that star is thousands of billions of miles from the earth; doubtless the light from it requires thousands of years, and some astronomers have said millions of years, to span the abyss which intervenes between our globe and those distant regions. But, nevertheless, there is a certain number of miles, even though we know it not, at which the remotest stars known to us must lie. I do not speak of the most distant star which the universe may possibly contain; I only refer to the most distant star that we can possibly bring within our ken. Imagine a great sphere to be described with its centre at our earth, and with a radius extending all the way from the earth to this last star knowable by man. Every star that we can see, every star whose existence becomes disclosed to us on our photographs, lies inside this sphere; as to the orbs which may lie outside that sphere we can know nothing by direct observation. The imagination doubtless suggests with irresistible emphasis, that this outer region is also occupied by stars and nebulæ, suns and worlds, in the same manner as the interior of that mighty sphere whose contents are more or less accessible to our scrutiny. It would do utter violence to our notions of the law of continuity to assume that all the existent matter in the universe happened to lie inside this sphere; we need only mention such a supposition before we dismiss it as wholly indefensible. I do not now make any attempt to express the number of miles in the diameter of the sphere which limits the extent of space known directly to man. What that number may be is quite immaterial for our present purpose. But the point that I specially want to bring

out is that the volume occupied by this stupendous globe, which includes within it all possible visible material, must be but a speck when compared with the space which contains it. Think of the water in the Atlantic Ocean, and think of the water in a single drop. As the drop is to the Atlantic Ocean so is the sphere which we have been trying to conceive in the boundless extent of space. As far as we know it would seem that there could be quite as many of such spheres in space as there are drops of water in the Atlantic Ocean. And, in all probability, these other spheres throughout space are tenanted by stars, systems, and galaxies just as grand in themselves, just as imposing in their collocations, and just as overwhelming in their myriads as are those which lie within that one particular sphere of which alone we know anything with certainty. Provided with this conception, we see at once that the doctrine of a visible central sun is an absurdity. As to whether there may be some central sun somewhere or other I can express no opinion, save that I do not see any reason whatever to think that such a body should exist. But we may feel practically certain, according to all rational grounds of probability, that even if there were a central sun in the universe it would not lie within our ken. Suppose that in the wide extent of the Atlantic Ocean there was one individual diatom of a specially interesting character; I do not mean one species with its myriad individuals, but one solitary specimen of a particular microscopic organism, which happened to flourish somewhere or other in the North or South Atlantic Ocean at some depth or other from the surface. Suppose that absolutely nothing further was known as to the whereabouts of this individual object, it might, for anything we could tell, lie beneath a mighty ice-floe in the Arctic regions; it might be miles deep in the Caribbean Sea; it might be basking on the surface in the Equatorial regions; it might be tossed in the surf on the shores of St. Helena; it might be floating at the mouth of the Amazons; it might be off the Cape of Good Hope, or amid the Antarctic icebergs. Would any reasonable man who desired to obtain that unique and extraordinary specimen for his collection imagine that if he went down to the coast of Cornwall and lifted a single drop from the Atlantic he would have such inconceivably good fortune as to find in it this rare diatom of which but a single individual existed throughout the millions of cubic miles of water which compose that mighty ocean? Of course, the mere statement of such a case is sufficient to show its absurdity. But the improbability that the ardent naturalist would secure the prize in the way I have described is not one whit greater than the improbability that, even if there were a central sun, it should lie within the domain of our scrutiny.

There is another line of reasoning by which the theory of proba-

bility will often give us invaluable information, which is not this time merely of a negative kind. There are many instances which might be taken of the principles now to be employed. I shall, however, adopt that particular one which presents, perhaps, the greatest interest to astronomers. The question often arises as to whether two objects which appear to us to lie near each other on the surface of the heavens are really neighbours in space, or whether their contiguity is only apparent. It often happens, for instance, that two stars appear very close together through the telescope, and we desire to know whether the two bodies are indeed allied by any bond of physical association, or whether the appearance may not be a mere accidental coincidence. The latter would be the case if the line joining the two stars happened to be so nearly directed towards the earth that, though in reality one of the stars is so much more remote than the other, yet that from our point of view the two happen to be projected on the same part of the sky. We are generally at fault in determining this question by direct observation, because it is usually impossible to find the actual distances by which the earth is separated from the objects, and, therefore, we are deprived of any direct assurance that those distances are so far equal as to enable us to assert that the apparent contiguity is indeed a real contiguity. Here the theory of probabilities will come to our aid and supply reliable information of the most convincing character. The illustration I shall take is one connected with a famous object. The great nebula in Orion is known to be the most glorious body of its class that the heavens display. Seen through a powerful telescope, like that of Lord Rosse at Parsonstown, the appearance of this grand "light-stain" is of indescribable glory when viewed by one whose previous acquaintance with practical astronomy enables him to inform the picture before him with the knowledge necessary for its comprehension. It is a vast volume of bluish gaseous material with hues of infinite softness and delicacy. Here it presents luminous tracts which glow with an exquisite blue light; there it graduates off until it is impossible to say where the nebula ceases and the black sky begins. But from our present point of view I am only thinking of the nebula as the nimbus of glory which surrounds the marvellous multiple star known to astronomers as θ Orionis. This complex sidereal system consists of four bright stars quite close together, with at least two smaller ones which evidently belong to the same scheme. The whole sextuple group makes a spectacle unique in the heavens. Wherever θ Orionis happened to be in the sky it must necessarily be known as the most elaborately composed of all multiple stars. But, as a matter of fact, we find the wonderful star apparently occupying the most imposing site in the great nebula, so that the latter serves as a splendid setting to the complex star.

The appearance presented would, of course, be explained if it should happen that the wondrous multiple did actually lie inside the nebula wherein it was seen gleaming. But it is, no doubt, conceivable that the effect actually witnessed may be accounted for if it should happen that the multiple star were billions of miles in the foreground, only so placed that from our point of view we beheld it projected with the brightest part of the nebula as a background. Such, too, is the translucency of nebulous material that it is at least a conceivable hypothesis that the nebula might be the object which lay in the foreground and that the star occupied a position billions of miles in the rear, but that from where we were situated our line of sight towards the star conducted our vision directly through the centre of the nebula. We have really no means of certainly knowing which of these notions is the correct one. At least, I should say, direct observation cannot be held to have shown conclusively that one of these doctrines is true and that the other two are false. It could only have done so when we had measured the distances of both the nebula and the multiple star from the earth. As a matter of fact we have not measured the distance of either the one or the other. This is eminently a case in which the theory of probabilities can be suitably applied, and the result to which it leads is of no uncertain kind. It demonstrates, by a line of reasoning the cogency of which cannot be impugned, that the famous stars are not standing out in front of the nebula, that they are not sunk far behind, but that they do veritably lie at the heart of the nebula itself, the combined object forming one glorious organisation. To simplify the application of the argument, let us assume that the visible heavens are constituted, not of hosts of stars and of nebulæ, but of one single star and of one single nebula. Let us suppose that the nebula occupies an area of about one square degree, that is, about five times the area of the full moon, and let us suppose that from our point of view the star appears to lie within the confines of the nebula. Would it be more reasonable to believe that the presence of the star in that particular locality of the heavens was only an accidental circumstance due to the line of vision from the nebula to the star passing through the eye, or that it was due to the fact that there was some physical connection between the two bodies, in which case, of course, the star would lie within the confines of the nebula, and the contiguity would be real as well as apparent. Suppose that the star and the nebula were both planted down absolutely at random on the surface of the heavens; then, as the nebula occupies a space of one square degree, and as there are forty thousand square degrees on the surface of the sphere, there are obviously forty thousand chances to one against the star happening to lie within the confines of the nebula, if the connection between the two bodies were merely casual and

apparent. For the ordinary purposes of life, when we find that there are forty thousand chances to one against a particular phenomenon occurring we generally exclude from the realm of practical duty the supposition that the unlikely event will occur. If a sum of £150 is to be raffled by the sale of enough tickets at a penny a-piece to leave a reasonable profit on the undertaking, the purchaser of a ticket builds but little hope on his chances of success. He knows that the chances against him are about forty thousand to one. We are entitled to say that there must be forty thousand chances to one against the star lying on the nebula, unless it should happen that there was some physical connection between the two. We see, however, that the star does lie on the nebula; therefore, for all practical purposes, we conclude that there must be some physical reason for this coincidence, but we can see no physical reason whatever why the line joining the star and the nebula should pass near the earth if the two objects were totally distinct. We are, therefore, forced to the conclusion that the star must be directly associated with the nebula. There are forty thousand chances to one that this is the case, and, as rational people, we adopt this conclusion as the basis of our belief. This will illustrate the argument used in the actual case of the great nebula in Orion and the multiple star in the same constellation. It is true that there are thousands of stars and thousands of nebulæ, but there is only one star so marvellously complex in its character as θ Orionis, and there is only one nebula so ample in its magnificence as that in the sword-handle of Orion. But we find the unique multiple star apparently located in the richest part of the unique nebula. If, therefore, we remember that the region of the nebula referred to is perhaps about a square degree in extent, we are entitled to affirm that there must be forty thousand chances to one that θ Orionis, the star, is veritably immersed in the glorious nebulosity of Orion. The theory of probabilities allows reasonable beings to draw no other conclusion.

The theory of probabilities is also very instructive in the information which it gives us with reference to the existence of an invisible myriad of bodies through space which can never be discerned by any means at our disposal. It is, of course, well known that the stars, properly so-called, are each of them brilliant suns, intrinsically of majestic proportions, but dwarfed to comparative insignificance by the tremendous distance in space at which they are placed. These bodies are all self-luminous, and it may no doubt happen that there are dark bodies in the vicinity of some of the bright stars to which these stars act as illuminants just in the same way as the sun dispenses light to the planets. But it is utterly impossible for us to discern objects illuminated in this fashion, for the light which they receive from suns which lie in their neigh-

bourhood would be altogether insufficient to render them visible to us across the vast abyss of space by which they are separated from the earth. There are, no doubt, certain indirect processes of reasoning by which astronomers have learned, with more or less accuracy, something with regard to these dark stars. Thus, for instance, it has been shown that the extraordinary fluctuations in the light of Algol must be attributed to the eclipses of a brilliant star by the interposition at regular intervals of a dark body revolving around it. There are also cases in which it has happened that two dark stars have come so near each other that they may be almost said to have collided, and the sudden transformation of energy of motion into energy of light and heat has been sufficient to announce far and wide through the universe the character of the event which has taken place.

But such instances are few and far between, and we should receive a very erroneous impression as to the population of the celestial regions by bodies devoid of light if we thought that the few whose presence has been occasionally disclosed in some very indirect and casual manner bore anything like a considerable proportion to the total number which actually exist. It is just at this point that the theory of probabilities comes to supplement our knowledge, and the results to which it conducts us are of a most startling description. By this theory we are assured, with a logic which cannot be controverted, that the invisible bodies must be vastly more numerous than the visible stars, so that even the millions of bright stars which we see afford only an utterly inadequate conception of the full extent of the material universe. Remember, I am not now referring to objects beyond our ken merely because they lie so far off. What I mean is that even within the sphere which contains the visible stars that we know, there is such a stupendous quantity of matter of a dark character, that the visible part bears an almost imperceptible proportion to it. It may well be asked how we know that there is this exuberant abundance of invisible matter. Let the theory of probabilities answer the question.

I shall suppose that we have to deal with a lapse of time, which for our present argument may be regarded as indefinitely long. It can be demonstrated that the conditions under which a mass of matter becomes so highly heated as to shine with star-like radiance are wholly exceptional in their character. So far as our present knowledge goes it would seem that the brightness of any sun-like body is to be attributed solely to the transformation in some fashion of mechanical power into heat. To take our own sun as an example, it is now an assured doctrine that the heat so necessary for our welfare is sustained by the gradual contraction of the solar volume. The energy available for transformation into heat in this process

seems sufficient to supply the radiation of the sun, not only for ages such as those which we reckon in the human period, but even throughout a lapse of time so vast as that which geology demands for the formation of the earth's crust. But it is certain that the quantity of possible light and heat to be dispensed by the sun is limited in amount. The sun cannot shine on for ever. A time must assuredly come when the mighty orb at present so brilliant will have no more potency for the radiation of light than is at present possessed by the earth or the moon. In like manner it can be shown that the materials constituting the sun have not always been luminous. We cannot indeed say with certainty by what influence their brightness was originally kindled. It probably arose from a collision, or an approach to a collision, between two dark masses which happened to come to an encounter with enormous velocities in their progress through space. It is, however, plain that the ages during which the sun has been brilliant form only an incident, so to speak, in the infinite history of that quantity of matter of which the solar system is constituted. Notwithstanding the millions, or thousands of millions, of years for which that matter has existed, it has perhaps only once become so heated, owing to circumstances which we may describe as accidental or casual, as to have acquired the ample light-dispensing power of a sun. It is, however, possible that such periods of light-radiating capacity should have occurred more than once; they may possibly have occurred several times throughout the ages of time past. Nor is it likely that the last phenomena of this kind have yet arrived. The sun, after the lapse of uncounted years, will lose all its heat and pass into a black, dark mass. In that form it may endure for an epoch so protracted that the spell during which it has acted as the luminary to our system will appear but a moment in comparison with the dark ages which succeed the solar splendour. But we can conceive that the darkness, which is the doom of our system, need not necessarily be eternal so far as its materials are concerned; it may be that again in the course of its wanderings through space, the tide of chance may at length bring the dark and tremendous globe so near some other orb that another collison should take place with appalling vehemence. The solid materials shall again become transformed into a stupendous glowing nebula, and then, in the course of the tedious contraction of this nebula, another protracted period of brilliance will diversify the career of this great body, and may last long enough for the evolution of planets and of whole races of highly organised creatures. The essential point for our present consideration must not be misunderstood. A little reflection will show that any periods of brilliance must be regarded as exceptional periods in the history of each body. Think, for instance, of all the iron on the surface of the earth.

There is the iron in the ore; there are the great stores of pig-iron lying ready for use; there are the vast bridges which span our rivers and straits; there are the thousands of miles of railway lines; there are the countless wheels and pieces of machinery; there are iron vessels on every ocean, and objects of every size made of iron, from the smallest nails up to hundred-ton guns. There is also at this moment, and every moment, a good deal of hot iron on the earth. While I write, iron is doubtless flowing from blast furnaces in England, Wales, and Scotland; while I write, ingots of white-hot Bessemer steel are being dealt with under the steam-hammer or in the rolling-mills; while I write, horse-shoes are being forged, and, at each moment, in one way or another, pieces of iron of every temperature could be found, from those which are as cold as the iron apparatus used by Prof. Dewar in his experiments in the liquefaction of air, up to the glittering melted steel which is poured from the tilted converter. But, it must be admitted that the highly-heated pieces of iron bear a very small proportion indeed to the total mass of iron in the world at any moment. No doubt there are many tons of iron now white-hot, but there are many millions of tons of iron which was once white-hot, and is now no warmer than the air around it. At certain phases in its history every piece of iron has to undergo the operation of being raised to incandescence, or even of being transformed into a liquid. But the laws of cooling are such that, as soon as the opportunity is afforded, the iron parts with its redundant heat and returns to a stable condition, in which it is at the temperature of the air. Now, suppose that some percipient being, who was viewing this earth from above, could only see iron when it was red-hot or white-hot, but that he had every facility for perceiving such iron as happened to be in this condition. With such faculties he would, no doubt, be able to discern here and there a stream of molten iron issuing from a blast furnace, or perhaps to witness the operation of the forging of an anchor under the steam-hammer, to watch the rolling of the plates for an armour-clad, or to see the more humble operations of the blacksmith or the nail-maker. But he would surely form an entirely erroneous impression as to the quantity of iron on this earth, or as to the extent in which it was employed in the varied purposes of the arts, if he concluded that there were no iron on our globe at all except that which happened at the moment to be in that particular incandescent state in which alone it was visible to him. If he were gifted with reasoning powers he would say, "It is quite true that I can only see the iron while it is red-hot, but I know that for iron to be red-hot on the earth's surface is an exceptional and abnormal condition of a very temporary or intermittent character. No doubt, every piece of iron may have to be red-hot once, or more than once, but the total duration of such

phases of incandescence are quite insignificant under ordinary circumstances when compared with the periods in which the iron is cold and invisible. I, therefore, cannot refuse to believe that there must be an amount of iron on the earth which I do not see, but which bears a proportion to that which I do see in the ratio of thousands or millions to one." Precisely similar is the way in which the astronomer who is properly familiar with the theory of probabilities will approach the study of the stars. He will reflect that each mass of matter through the period of its existence must be cold and invisible for by far the greater part of the time; he will reflect that on rare occasions, separated by intervals of appalling length, certain exceptional conditions arise by which this dark piece of matter may be so kindled that, for an epoch, long it may be in years but brief indeed when compared with the span of told existence, the body would glow as a star. Provided with this conception let us look on the universe with its millions of orbs. These orbs will be found in every phase possible to such bodies; but the enormous majority of them must, in accordance with the principles just laid down, be in the dark and invisible state. Out of some millions it may perhaps be concluded that, at any particular moment, a dozen or so might, by accidental circumstances, be in those phases of their several careers in which luminosity is a characteristic. In such cases only will the orbs be visible. The instructed astronomer will, therefore, believe that the non-visible orbs must be hundreds, thousands, or perhaps millions of times more numerous than those which he can see. When we remember that, by our telescopes and on our photographs, we can discern something like one hundred million luminous stars in the sky; when we remember that every one of these is the indication of a wholly exceptional incident in the career of the body from which the light emanates; and when we further believe, as believe we must, that for each one star which we can thus see there must be a stupendous number of invisible masses, then, indeed, we begin to get some notion of the extraordinary multitude in which material orbs are strewn through space. The theory of probabilities declares to us with a certainty, hardly, in my opinion, inferior to that of optical demonstration, that even within the distance which can be penetrated by our telescopes the visible stars cannot form the hundredth, probably not the thousandth, perhaps not the millionth part of the total quantity of matter.

On the question as to whether space is finite, our observations with the telescope have but little information to give. The question here involved is rather of a metaphysical complexion. The extent of space depends more upon the facts of consciousness than upon those of astronomical observation. It may, perhaps, simplify the discussion of the subject if we first of all consider the question as to

whether the quantity of matter in the universe may be presumed to be infinite or not. We can put the question into a perfectly concise form by reflecting that every particle of matter, whether solid, liquid, or gaseous, is composed of molecules. No doubt these molecules are so numerous that even in the air we breathe the capacity of a lady's thimble would contain a multitude of molecules so great that it has to be enumerated by billions. But we are not at present merely concerned with the actual number of molecules that may exist in the atmosphere, even in its whole extent, or in the whole earth, or in the whole sun. Let us try to conceive the number of molecules that are present in all the stars, bright and dark, which exist not only within those regions of space accessible to our telescopes, but elsewhere as well. In short, let us try to conjure up in our imagination the kind of figures which are to express the total number of molecules in the universe. Is that number finite, or is it not? This is, perhaps, one of the most fundamental questions in nature which could possibly be proposed. Let us consider the consequences which would follow from adopting a negative answer to this question. If we suppose that the number of molecules was indeed infinite, then we are necessarily forced to admit at once that space must be infinite too; for had space any boundary, then, since the molecules do not admit of being crowded together beyond a certain extent, it would be impossible that they could exist in infinite abundance. Adopting the sound principle that we need not assume more than is necessary to explain the phenomena actually presented by our consciousness, it seems to me to be clear that the number of molecules of matter in the universe must be finite. The row of figures which would express that number, whatever it may be, is the most remarkable descriptive constant which the universe possesses. It matters not for our present argument what may be the number of figures by which this number can be expressed. It may not be too large to be written even on the thumb-nail by the compendious method of notation now in general use.

Let us next see whether we can learn anything as to the extent of space itself. It is apparent that we seem to be in the presence of about equal difficulties whether we attempt to think of space as finite or as infinite; for, imagine that you go up in a straight line into the sky, and on, and on, and on, in thought for millions of miles, it would seem that the journey ought to be endless; for, supposing that you try to conceive a boundary, the imagination will equally suggest that there is something on the other side of that boundary from which you can commence again. It appears almost equally impossible to suppose that the journey could be carried on for ever as to suppose that it could ever be brought to an end. It was, however, long ago shown by Kant that space was rather to be

regarded as a form in which the human mind was compelled to regard objects than as a self-existing fact of external nature. We have no power in our own consciousness to surmount the difficulties of conception to which I have referred. They arise from the conditions of our mental constitution, and reasoning about space will do no more to remove its mysteries than it will suffice to give to the man born blind a notion of the colour scarlet. But mathematicians, while fully aware of the imperfection of their powers of conception as regards the facts of space, are still enabled to frame a perfectly consistent theory according to which the observed phenomena of nature can be presented within a space which is finite in dimensions. They are even able, as it were, to lay their finger upon the exact point in which the subjective difficulty has arisen.

I must here be permitted to refer to a point in connection with the elements of Euclid. The beginner who studies this work commences, of course, by learning the axioms, and reads without any feeling of discontent or querulousness such venerable truths as that "the whole is greater than its part." But, after a number of propositions of this eminently unquestionable but somewhat puerile kind, he is suddenly brought up by the famous twelfth axiom in which Euclid lays down the theory of parallel lines. Here is a statement of a radically different kind from such assertions as that "if equals be added to equals the wholes are equal." In fact, Euclid's notion of parallel lines is so far from being an axiom of the same character as those other propositions that it is quite possible to doubt its truth without doing any violence to our consciousness. The principle assumed in the twelfth axiom cannot be proved, and it has been well remarked, that it indicates the supreme genius of Euclid to have expressed this particular axiom in such language as challenges at once the attention and the caution of the student. It may, however, be said that nearly all our difficulties in connection with the conceptions of space take their origin in the ambiguities which arise from the assumption which the twelfth axiom implies. Some modern mathematicians have gone so far as to deny the existence of this axiom altogether as a truth of nature, and it is most important to notice that when free from the embarrassment which the assumption of Euclid involves, a geometry emerges which removes our difficulties. It seems to show that space is finite rather than infinite, so far as we can assign definite meaning to the words, but it would lead me into matters somewhat inconvenient for these pages if I were to pursue the matter with any further detail. I may, however, say that it can be demonstrated that all known facts about space are reconcileable with the supposition that if we follow a straight line through space, using for the word straight the definition which science has shown properly to belong to it, that then, after a journey

which is not infinite in its length, we shall find ourselves back at the point from which we started. If anyone should think this a difficulty, I would recommend him to try to affix a legitimate definition to the word straight. He will find that the strictly definable attributes of straightness are quite compatible with the fact that a particle moving along a straight line will ultimately be restored to the point from which it departed.

It is quite true that this seems to be a paradox, but it will not be so considered by the geometer. The truth it implies is indeed quite a familiar doctrine in modern geometry. But what is not so familiar to mathematicians is that the restoration of the travelling particle to the point from which it originally started need not involve a journey of infinite length. If we assume Euclid's twelfth axiom to be true, then no doubt the traveller can only get back to the point from which he started as the result of a journey of infinite length which will have occupied an infinite time. But now suppose that Euclid's twelfth axiom be not true, or suppose that, what comes to the same thing, the three angles of a triangle are not indeed equal to two right angles, then the journey may require neither an infinite lapse of time nor an infinitely great speed before the traveller regains his original position, even though he is moving in a straight line all the time. Space is thus clearly finite; for a particle travelling in a straight line with uniform speed in the same direction is never able to get beyond a certain limited distance from the original position, to which it will every now and then return. Those who remember their Euclid may be horror-struck at the heresy which suggests any doubt as to the sanctions by which they believe in the equality of the three angles of a triangle to two right angles. Let them know now that this proposition has never been proved, and never can be proved, except by the somewhat illogical process of first assuming what is equivalent to the same thing, as Euclid does in assuming the twelfth axiom. Let it be granted that this proposition is to some very minute extent an untrue one; there is nothing we know of which shows that such a supposition is unwarrantable; no measurements that we can make with our instruments; no observation that we can make with our telescopes; no reasonings that we can make with our intellect, can ever demonstrate that the three angles of a triangle may not as a matter of fact actually differ from the right angles by some such amount as, let us say, the millionth part of a second. This does no violence to our consciousness, while it provides the needed loophole for escape from the illogicalities and the contradictions into which our attempted conceptions of space otherwise land us.

ROBERT BALL.

THE WEST INDIES IN 1892.

THE voyage I am about to describe was made in seas which offer an ideal cruising ground to a yachtsman. Every year we see fleets more numerous and of increasing tonnage assembled under the protecting breakwater of the Isle of Wight. The modern pleasure fleet is mostly propelled by steam. By lavish expenditure, powers of locomotion have been created on a vast scale; and broader waters than those of the Solent are needed to turn the new capabilities of travel to the best advantage. A cruise to the West Indies cannot fail to impress on the memory in unfading colours the loveliest pictures of natural beauty which it is possible to conceive.

On the sea experiences of our trip I must be brief. The *Sunbeam* sailed from Spezzia at 10 P.M. on January 2. Avoiding details, I may simply mention that we touched at Villefranche, Barcelona, Valencia, Gibraltar, Tangiers, Teneriffe, and St. Vincent in the Cape de Verdes. In heavy weather in the Gulf of Lyons we lost a boat, and in a hard south-west gale some sixty miles south of Cape Spartel our jibboom and fore-topmast were carried away. Having weathered all the storms which had impeded progress, and profited with alacrity by every favouring breeze, we made the revolving light on Ragged Point, the eastern extremity of Barbados, at 7.30 P.M. on the 12th February.

The following morning we anchored in Carlisle Bay. The view from the sea is not unpleasing. A dense mass of rich green tropical vegetation extends from Needham Point to the entrance of the Carénage, or harbour. Bridgetown, the capital of the island, is built on the low ground near the shore. Behind the town the land rises in a gradual slope. The square patches of cultivation on the sugar estates in the distance produce the effect of a country divided by hedges. In the subdued light and cool of the evening, the scene suggests an English landscape rather than an island in the tropics. We landed at noon, an hour at which only the latest arrivals from temperate latitudes would venture to confront the fierce heat of a tropical sun. In the office of the West India and Panama Telegraph Company, where we were hospitably received, we found the latest newspapers from England and the United States. A refreshing breeze was blowing through the open Venetian shutters and bulkheads. In three carriages, the drivers of which were in livery and wore each a tall black felt hat, we proceeded through the busy streets to the southern end of Bridgetown. The House of Assembly, and the offices of the Administrative Departments, form a pleasing

group, in the Gothic style, having in the centre a grove of shady trees. Close by is the bronze statue erected to the memory of Lord Nelson in 1812.

The charm of Bridgetown, to new comers from England, consists in the gardens, full of gay colouring. Hibiscus, crotons in many varieties, and oleanders in full bloom, are the flowers seen in the greatest abundance. We were all buyers of garments suitable for hot climates. The retail business in manufactured goods is concentrated in a few establishments mounted on a vast scale. At Whitfield's Stores, in addition to the sale of clothing, an active trade is done in frozen meat and game. A new and most efficient machine delivers into the ice-room twenty tons of block-ice daily. With a cost of production estimated at 8s. per ton, and a selling price at £2 10s., a handsome profit is realised, and dividends of 10 per cent. are anticipated. Such a return should be yielded ungrudingly by consumers. No form of enterprise and no application of science to practical purposes could be more truly beneficent than the manufacture of ice for the relief of the sufferings endured by white men in a tropical climate.

The happy faces of our coloured fellow-subjects are a most pleasant sight in Barbados. The Barbadian negro is no idler. The population of 16,000 whites and 166,000 coloured people is crowded in the proportion of 1,100 to the square mile. The main occupation being agriculture, it is evident that the whole surface of the island must be industriously and skilfully cultivated to enable so large a number to obtain a subsistence.

We dined with the Governor, Sir James Hay, and gladly accepted his kind invitation to take up our quarters in Government House.

February 14th.—The cathedral, a capacious and well-designed building in the Gothic style, contains many tombstones bearing dates of the seventeenth century. On the quay of the Carénage we found a group engaged in an open-air service. Moody and Sankey hymns were sung with much feeling by the negresses gathered round the preacher. The sermon was not long. In the opening, the position of those who neglect religion was compared to that of a rich man's heir failing to claim his inheritance. After enlarging on the same theme, the preacher suddenly rivetted the attention of his audience by exclaiming several times, "God made us white!" He proceeded to explain this as a reference to the condition of his soul now that he had become a believing Christian. "Far better to have a white soul and a black face, than a white face and a black soul!" was the remark addressed with emphasis to three seamen from a colonial schooner who were carelessly looking on. Later in the evening we stood for some time at the door of the meeting-house of a newly-formed sect known as the "Faith-healers." Before an

audience of some two hundred persons a negress was holding forth with remarkable fluency and impressiveness of manner on the familiar truths of Christianity. While speaking, the preacher walked up and down the side of the room, often stopping and assuming a pose which contributed much to the oratorical effect. It is certain that religion has a real hold upon the people of Barbados. The Government expenditure on stipends to ministers of religion is £14,000 a year; and there is much voluntary effort.

Monday, February 15th.—At 5.30 P.M. went to the Savannah. Polo. Band of Duke of Wellington's Regiment. It is always cheering to see the pluck with which the British officer whose destiny may have consigned him to the grilling heat of India and other stations in the tropics preserves his energy and activity by playing the same games which he enjoyed in his public-school days in England. It is a circumstance inviting reflection that the expenditure incurred by the Imperial Government for military purposes in Barbados is no less than £550,000 a year.

Tuesday, February 16th.—Started at 7 A.M. in a special train. The only railway of Barbados is a narrow-gauge surface-line, following every indentation of the ground, with sharp curves and steep inclines. The journey afforded an excellent opportunity for seeing the interior of the island. In extent it compares closely with the Isle of Wight. In shape it resembles a pear. The stalk, or south point, is low and narrow, while the northern part is wider and hilly. The greatest elevation is 1,104 feet. Every spot of fertile ground is carefully cultivated. Sugar is, practically, the sole product. Although attempts have been made to amalgamate a few properties, the sugar estates are usually of moderate extent, averaging some 300 acres. Owing to the comparatively small size of the estates, the island is thickly studded with buildings, which present a curious combination of the factory, the farmstead, and the residence of a country gentleman. The planters live in large houses surrounded by gardens and dense groups of trees. Close at hand will be seen tall chimneys, boiler-houses, and other buildings necessary for treating the sugar after the cane has been cut. There is a waste of power in the unnecessary multiplication of mills and machinery. Large amounts of capital are lying idle in mills not worked to the full extent of their capacity. Better qualities of sugar could be produced, and at a lower cost, by concentrating the manufacture in a few central usines, mounted on a large scale and equipped with the most modern machinery.

In common with the other islands of the West Indies, Barbados suffered very seriously from the depression of a few years ago, when the price of sugar fell to below £10 per ton. The markets are now greatly improved, while the pressure of bad times has produced some

abiding good results. It has compelled the strictest attention to economy in every department. The cultivation is more carefully carried out than before, and valuable improvements have been introduced in the methods of extracting the juice from the cane. It is said that the cost of producing sugar has now fallen to something under £10 per ton. The depreciation in prices caused by a general over-supply had led to a marked reduction in the quantity produced. Under the present more favourable conditions the output of sugar has revived, and now exceeds in volume that of any former period. By a treaty recently negotiated, the United States admits the Muscavado sugar of Barbados duty free, the island agreeing to receive the bread-stuffs it requires from the United States also free of duty. The treaty has produced a marked effect on the course of trade. While the exports to the United Kingdom had fallen from £190,000 in 1886 to £130,000 in 1890, the exports to Canada and the United States had doubled, and at the date of the latest returns exceeded £1,000,000 in value. Barbados depends almost entirely on imported food, the principal articles being obtained from the United States. Great Britain has the monopoly of the trade in manufactured goods.

During our short stay we made an interesting excursion to Codrington College, an institution founded in the reign of William III. by the governor whose name it bears. The picturesque stone buildings stand in a lovely position facing the sea, and at the foot of an elevated range of hills. The college is affiliated to Durham, and the course of instruction includes theology and the classics. The number of students is from twenty to thirty. The majority take orders; a limited number follow the medical profession. From Codrington College it is a stiff climb to St. John's Church, built on the edge of a cliff, with a commanding view of the sea. The church would be worthy of a large parish in England. We were told that the congregation on Sundays often approaches a thousand persons. The Church of England has a strong hold on the negro population of Barbados. We recognised on the tombstones names still familiar in the island, where many families have been settled for several generations. It was here and at St. Christopher's that England founded her first settlements in the West Indies. It was here that the first sugar-cane was planted upon the soil of the British dominions. It was here that many devoted adherents of the Royal cause found a refuge after the Civil Wars.

Sailing from Barbados at 10 P.M. on February 16th, at daybreak on the 18th the high coast-range on the north shore of Trinidad was in sight. As we gradually closed with the land the views of the coast became more and more beautiful. The highest summits attain an elevation of 3,000 feet. The lofty peaks and ridges of the skyline rise and sink in graceful curves and long, sweeping slopes. From the topmost points to the sea the descent is almost precipitous. Every-

where the mountains are covered with a rich green virgin tropical forest, swept by the refreshing breezes of the trade-wind, which at this season of the year never ceases to blow. At 2 P.M. we were off the entrances to the Gulf of Paria, named the Dragon's Mouth by Columbus in commemoration of the difficulties he encountered from strong tides and currents and baffling winds. We were fortunate in entering the Gulf with a commanding breeze from the north-east, which carried us over a three-knot tide through the Boca de Huevos into the smooth waters of the Gulf of Paria.

Trinidad is fortunate in not depending solely on sugar. Cocoa is grown most successfully, and now forms an article of export which already rivals, and promises soon greatly to exceed in value, the older staple of West Indian trade. In addition to sugar and cocoa, other products — such as coffee, tobacco, and fruit — in which an active trade with the United States is being developed, give excellent promise for the future. The island possesses a unique source of wealth in the famous Pitch Lake. The value of the exports and imports may be taken at £5,000,000, the two sides of the ledger approximately balancing each other. The total population is 196,000, about one-third of the inhabitants being coolies. At the present time East Indian emigrants are being introduced in large numbers, many of whom prosper and become permanent settlers. These imported labourers are not to be compared in physical power with the negroes; but the latter are not disposed to regular industry, and are under no pressure to work from necessity. In the course of its chequered history Trinidad has passed in succession under the rule of Spain, France, and England. All the races who have had dominion over the island are represented in its heterogeneous population. The lower class of shopkeepers are Chinamen. English is everywhere spoken, and the French and Spanish languages are heard on all sides.

Trinidad has a public revenue of nearly half a million. With this handsome sum, under able administration, much has been done to introduce civilisation and to develop resources. Under present conditions the West Indian Islands find their best market for sugar in the United States, and for cocoa in London. It would have been a help if the Mother Country could have given to the products of Trinidad a preferential position in her markets. This idea can now, however, be no longer entertained. We have called into existence too many industries depending for their success on the cheapness of raw materials.

An excursion to the Maracas Waterfall was a charming incident in our stay at Trinidad. After driving for some miles over a flat country, through numerous large sugar plantations, we commenced a rapid ascent, by a running stream which rushes down a thickly-wooded valley from its source in the central moun-

tain range. Nothing can exceed the loveliness of the scenery. The vegetation presents all the richest beauties of the tropics. The grandest tree is the Saman, whose huge trunk, strengthened by powerful buttresses, supports branches of almost illimitable spread. The tree is covered with orchids and parasites. In the rainy season it is a mass of lovely flowers. Palms and ferns in every variety, the cannon-ball tree, the bread-fruit, and the nutmeg grow luxuriantly. Here and there the space has been cleared for cocoa-trees—the pods at this season wearing their most brilliant colours of yellow, pink and orange. The fall of Maracas in dry weather is diminished to a thin veil of water. It descends from a precipice 300 feet in height, recalling the graceful lines of Tennyson :

> "Slow-dropping veils of thinnest lawn did go,
> And some, like wavering shadows, rose and fell,
> Rolling a slumbrous sheet of foam below."

We sailed from Trinidad on February 20, and at 8 P.M. on the following day were safely anchored in the Carénage of St. George, the picturesque chief town of Grenada.

February 22nd.—Going on deck shortly after sunrise on the following morning, the land-locked harbour presented an enchanting scene. It is surrounded by an amphitheatre of hills of the most varied forms, clothed with the richest vegetation from their summits down to the water's edge.

Rode up to the Grand Etang, the bridle-path of which ascends, in a distance of less than seven miles, to a height of some 2,000 feet. Having scaled the topmost ridge, the view extends to the eastward over the broad waters of the Atlantic, and to the westward over the Caribbean Sea. In the foreground lies a lake, some thirteen acres in extent, filling an ancient crater. Throughout the ascent the scenery is exquisitely beautiful. The mountains are broken into lofty peaks and deep valleys, affording at every turn some new yet always charming view. The vegetation includes all the trees and flowers of the tropics.

Grenada is less dependent on a single product than most of the islands of the West Indies. The surface of the island is too mountainous for the successful plantation of sugar. The chief product is cocoa, the annual exports of which are valued at nearly a quarter of a million. The quantity shipped has doubled in the last ten years. Many valuable spices are extensively cultivated. A trade in fruit is being opened up with the United States. The aggregate exports have advanced from £181,000 in 1886 to £266,000 in 1890. Cocoa grows most luxuriantly in the West Indies up to an elevation of 2,000 feet. A planter who contemplates growing cocoa must begin by clearing the forest, an operation which should be undertaken a year before planting is attempted. As soon as the forest is cleared, bananas should be planted twelve to fifteen feet apart, and a nursery formed

in which the cocoa can be raised from seed. At the end of the second year, during the rainy season, the cocoa should be planted out, in the proportion of about 300 trees to the acre. In three years, in favourable localities affording a deep soil, the plants begin to bear. In five years the trees are in full bearing, and the produce will average 900 lbs. to the acre. A good tree should yield some three pounds of cocoa. The price, according to the latest New York quotations, was twelve cents per pound, which would give 108 dollars to the acre.

Nutmeg is becoming a source of much profit to many islands in the West Indies, and especially in Grenada. For many years the nutmeg tree has been grown; it is only recently that its cultivation has received serious attention. To start a nutmeg plantation the ground must be cleared, at a cost of £6 per acre. Saman trees should then be planted, forty-five feet apart. Meanwhile the nutmeg seeds should be carefully reared in the nursery. In about two years the seedlings should be planted out. Unless the locality is very favourable, ten years must elapse before the trees begin to be productive. A large number will be of the male sex; and as the proportion of male to female trees should not exceed one in thirty, the planter will have to cut down the trees freely as soon as their sex is declared. Mr. Whitfield Smith, the able superintendent of the Botanical Gardens at Grenada, believes that this difficulty may be overcome by budding. It is reckoned that nutmegs should yield an annual profit to the planter of about ten shillings per tree.

The heights above St. George are crowned with extensive stone forts, from which the last soldier has long since been withdrawn. They were mostly erected during the period of the French occupation, and were the scene of a hard struggle between the forces of Lord Macartney and Count d'Estaing.

At Grenada we found the Governor, Sir Walter Hely Hutchinson, busily engaged in an effort to settle the labourers on the Crown lands of the Windward Islands, the object in view being to give to those Colonies the advantage of numbering among their population a large proportion of small proprietors having a stake in the prosperity of the islands. In pursuance of this policy, allotments of Crown lands are in course of being sold to labourers at moderate prices. In time the number of small proprietors will become considerable. It will be obvious that this generous policy must be carried out with care and discretion. Living under a tropical sky and settled upon a productive soil, the labourers, if left to themselves, will grow provisions, such as cassava, yams, plantains, and bananas, while the cultivation of cocoa and other economical plants will be neglected. Dwelling in remote valleys, away from the influences of civilisation, the settlers may deteriorate both morally and

materially. To meet this difficulty it was at one time in contemplation that the Government should form model plantations. The labourers were to be paid at fixed price for the production and to receive the profits in addition, after deducting cost of supervision and manufacture and a low rent for the land. It has not as yet been found practicable to carry out this scheme. Sir Walter Hely Hutchinson has now made a proposal for an experimental clearing in the Richmond Valley, in the island of St. Vincent. It is estimated to involve an expenditure of £5,000, on which a return of 5 per cent. may be looked for. This proposal may prove sufficiently attractive, both from a philanthropic and a prudential point of view, to attract subscriptions to the limited amount required.

In the afternoon of February 23rd, we steamed from St. George to Goyave Bay, a distance of seven miles, along a coast of surpassing loveliness. The landing at Goyave was not unattended with difficulty. We were most kindly received by Mr. Gurney, who is in charge of the extensive nutmeg and cacao estates belonging to Colonel Duncan. The scenery on the way to the plantation is enchanting. The road follows a stream descending through a deep valley hemmed in by picturesque mountains. Large clearings have been made in the tropical forests, and in these the nutmeg and cacao are grown in profuse abundance.

Leaving Grenada on the 23rd, at daybreak on the following morning St. Vincent was near at hand on the starboard bow, presenting a noble mass of mountains rising to a height of 4,000 feet. Kingston Bay is spacious, and offers excellent shelter from the trade-wind, which rarely ceases to blow. The anchorage commands a fine view of the island. A stone fort of considerable size looks down upon the sea from the heights forming the northern horn of the bay. Below, upon the shore, lies Kingstown, small, but regularly built. It reminded Mr. Froude of a scene in Norway. The mountains, of volcanic formation, rise in the background to a height of nearly 3,000 feet. As at Grenada and Trinidad, the sky-line is broken into sharp peaks and crags of the most varied and beautiful forms. The mountain sides are furrowed by deep ravines, and are clothed with dense forests, rich vegetation, and abundant pastures. The rain-fall here, as in all parts of the West Indies, is copious. Throughout the year the islands are clad in a fresh green mantle. Government House is a conspicuous object in the landscape. It stands a few hundred feet above the town, in a botanical garden adorned with noble trees.

The Administrator, Captain Maling, paid an early call on board. We discussed the recent troubles among the black population. Discontent had been caused by the proposal to cease to maintain in each island a separate Chief Justice, of necessity comparatively poorly

paid, and only partially employed. The Government were desirous of appointing law officers at higher salaries, who should undertake to act for a group of islands. The plan was unpopular in those islands which would have been deprived of a resident official while called upon to contribute to the salary of an officer resident elsewhere. The attempts at disturbance were effectively quelled by the prompt action taken by Sir Walter Hely Hutchinson. The authority of the Government having been sufficiently asserted, it has not been thought necessary to press the adoption of a useful reform. It is a great mistake to suppose that the multiplicity of officials in the islands is due to a desire at home to have the command of a large patronage. The obstacles to reduction are raised by the people of the several islands.

If sugar is the most important product of St. Vincent, arrowroot is the most characteristic article grown in the island. The quality is unsurpassed, while the price yields a highly encouraging return. The cultivation of cocoa and nutmeg has been commenced with satisfactory results. Sisal hemp can be grown in perfection. It is proposed to open up a trade in fruit with the United States and Canada, by giving subsidies to a line of steamers.

The black population have been complaining, and not without reason, of the low scale to which their wages have been reduced. The men now barely earn a shilling per day, and the women somewhat less. In the depression which had lately fallen on the sugar industry, reductions of wages were accepted as inevitable. In the more cheering position which has now been reached, the negroes consider that their pay should be more liberal. We passed through large gatherings of people in Kingstown and the outskirts. They bore no marks of squalor or of discontent. Their demeanour was most friendly.

Weighing anchor shortly after midnight, at dawn on February 25th we were off the famous Pitons of St. Lucia. These noble peaks rise to a height of more than 2,000 feet above the sea. The higher of the two is a mountain mass with precipitous sides. The less lofty is a sugar-loaf peak, similar in form to the Pan d'Azucar, which forms such a fine feature in the entrance to the splendid harbour of Rio de Janeiro. We closed with the beautiful shore of St. Lucia a few miles north of the Pitons. The coast is indented by numerous bays, affording excellent anchorage. In the valleys and low grounds the sugar-cane is cultivated.

At 8 A.M. we entered the port of Castries. Two steamers, bearing the well-known blue stripe of Messrs. Lamport and Holt, were at anchor at the entrance of the harbour. The yellow flag was flying on the fore, the vessels having recently come from Santos, where yellow fever is raging. Fatal cases having occurred on both vessels,

pratique would not be given until fourteen days had elapsed from the date of the last death. The harbour-master was an old acquaintance, who had last brought us to an anchor at St. Helena. He took charge of the *Sunbeam*, and we were soon made fast to the wharf belonging to Messrs. Castanet. Thirty tons of good coal were put on board in an hour and a half. The operation of coaling is performed as quickly at St. Lucia as at any other port in the world. The coal is brought on board in baskets, the work being done entirely by women, who can earn up to eight shillings a day.

Our visit to St. Lucia was undertaken mainly with the view of forming an opinion on the spot as to its merits and capabilities as a coaling station. Castries Bay is easily defended and the harbour is secure. The physical conditions which render Castries Bay a secure harbour, tend to make its stagnant waters unhealthy under a tropical sun. Malarial fevers are prevalent, and especially in marshy ground, of which there is a large extent around the shores of the harbour. Drainage is a serious difficulty at Castries. The town is built on a small space of flat ground, and is completely hemmed in by an amphitheatre of high and precipitous hills. There is no flow of running water, and the insanitary condition can be only too easily appreciated. The Government should have an absolute control over the civil population of Castries; it should acquire possession of the entire foreshore; it should have the power to fix the number of people who should be permitted to settle in the vicinity of the harbour.

It has been proposed to remove to St. Lucia the British troops hitherto stationed at Barbados. On many grounds the latter seems the more desirable station in peace. The barracks are admirably adapted to a hot climate. They stand near the breezy shore, in a spacious savannah or park, equally convenient for drills and exercise, for cricket, tennis, and polo. It should not be put out of view that Barbados has a population of 172,000, as against the 44,000 of St. Lucia. As a link with the mother country, it is desirable that the British troops in the West Indies should be stationed, in peace, in the largest centres of population. If war threatened, in a few hours the force in Barbados could be moved to St. Lucia. In connection with the fortification of St. Lucia as a coaling-station, it must be recognised that it may be a long distance from the theatre of war. With fast merchant-steamers to carry supplies of coal, a movable rendezvous might offer great advantages.

Leaving St. Lucia on February 26th, at dawn on March 1st the Blue Mountains of Jamaica were in view. We ran through the Cays of Port Royal and through the ship-channel leading up to Kingston, without a pilot, at full speed, and dropped anchor at 4 P.M. A few minutes later Sir Henry Blake and his staff were on board and gave us a cordial welcome. The large and important island of

Jamaica is beginning to rally from a long period of depression. The exports from Jamaica have increased from £1,280,000 in 1886 to £1,903,000 in 1890-91. While the export trade to the United Kingdom has remained nearly stationary, the development has been rapid in the trade with the United States, especially in fruit. In 1890-91 the exports of oranges and bananas exceeded half a million sterling in value. Jamaica is fortunate in the variety of its products, which include sugar, coffee, ginger, rum, and dye-wood. The prosperity of the island is abundantly proved by the increase in the imports from £1,326,000 in 1886 to £2,189,000 in the latest returns. Of the import trade of Jamaica 56 per cent. is with the United Kingdom.

It is interesting to trace the causes which led to the depression of the sugar interest in the West Indies. Sir Henry Blake was my teacher on this subject. Half a century ago the supply of sugar was comparatively limited, and the price was £60 a ton. With ever-increasing sources of supply, a great fall in price ensued, and no improvement having been made in the methods of cultivation and manufacture, the position of the sugar planters was far from prosperous. Their misfortunes were not caused by the manumission of the slaves. The decay of the sugar industry in the West Indies began in 1830, and was mainly, if not solely, due to the increasing competition and the consequent gradual fall in prices. At the present day labour is not more costly than at the time when slaves were employed. The slave cost 1s. 6d. per day, and the price of coolie labour is approximately the same. Under the pressure of difficult times the methods of growing and manufacturing sugar have been greatly improved, and the cost of production, including interest on capital, has been brought down from £10 to £12 a ton. Sugar is now selling at 3½ cents per pound, or £16 6s. 8d. per ton, thus giving the planter a not unsatisfactory return.

In considering the complaints urged at home by those who claim to speak in the interest of the planters, it must be borne in mind that the West India Society is mainly an organization of proprietors, the management of whose affairs has been committed to local agents. The absentee must employ in the first place an attorney, who holds the legal authority and exercises only a general control over operations. The estate is, as a rule, worked with capital borrowed from a merchant, who probably charges 8 per cent. for advances made on the drafts of the attorney. The merchant, taking a lien on the crop as security for his advances, claims to have the arrangement of the freightage, and charges a commission on the freight. He has the management of the sale of the produce in England, and upon this operation another commission must be paid. In the working of a sugar plantation the immediate supervision is committed to an overseer, assisted by a bookkeeper. To these men is entrusted the man-

agement of the cultivation of the cane, the distillation of the rum, and the manufacture of the sugar. To do the work well, technical knowledge and the invigorating influence of personal interest are required. It would be a moderate estimate to put the charges for management and supervision at 20 per cent. A resident owner, having the command of sufficient capital, escapes these heavy burdens. It is unfortunate that three-fourths of the owners of sugar estates in the West Indies are absentees. It has been proposed to substitute factories for the present system of separate mills for each plantation. To ensure the success of such a change operations must be conducted on a large scale. To run a factory equipped with the most improved machinery, it would be necessary to command the entire quantity of cane grown upon an area of not less than four or five thousand acres. A number of growers must combine in order to establish an efficient factory.

Coffee is an article of growing importance in the productions of Jamaica. In value it is in advance of sugar, and the quality produced is of high standard. The fruit trade with the United States has advanced by leaps and bounds. Sir Henry Blake confidently believes that a large vegetable trade in early potatoes and tomatoes can be developed, and that the cacao may be successfully cultivated. In order to start a new industry, the Government must take the initial steps. For this purpose it is proposed to establish parochial committees. Through their agency the cultivators could be placed in communication with competent instructors, who would teach the most approved methods of cultivating and preparing cacao. The importance of a good method may be appreciated from the fact that Trinidad fetches 60s. per cwt. more than Jamaica cacao, the difference in quality being entirely due to the superior method of preparation. The Governor proposes to buy cacao from the growers, to prepare it properly, and offer it for sale. The results of the operation in relation to the costs of the process and the prices fetched will be made known to the growers. Flour made from dried bananas, preserved fruits, onions raised from seed imported from the Canary Islands, and other articles, it is believed, could be advantageously produced. It is highly satisfactory to know that there is no lack of capital in Jamaica.

Turning to the relations between this colony and the mother country, it is gratifying to know that among the coloured population the feeling is decidedly against secession to the United States. They do not like the inferior social position which the black people occupy in the great Republic. In religious matters it is interesting to notice the success of the Moravians. Every minister in this sect works with his own hands, thereby setting an example of industry, and imparting a dignity to labour. The ministers who are sent out from Germany must all be married men, the wives being selected,

not by their future husbands, but by the governing body of the sect. Thrift among the Moravians is universal. Their schools are admirable.

On March 5th we made an expedition by railway to Balaklava, a distance of 75 miles. The difficulties which the engineers of the line have surmounted may be appreciated from the fact that Balaklava, distant 75 miles from Kingston, stands at an elevation of 1,800 feet above the sea. The engines being fitted with bogies, the sharp curves offer no difficulties. The views throughout were delightful. The broad sweeps of grass dotted with single trees, with occasional thickets of denser growth, recalled the scenery of an English park, though the trees are those of the tropics. The cattle, of the shorthorn breeds of our own country, thrive marvellously under a sun and in a climate vastly different from that of England, with its chilly wind and sullen skies. By frequent and swift transition the scene would change from sylvan prospects of broad expanse and abundant pasture to some narrow gorge, hemmed in by rocks and shaded by hanging woods of impenetrable density. Or, again, emerging from a short tunnel through the limestone, and skirting a precipice of giddy height, a view of vast extent would be suddenly disclosed, ridge rising beyond ridge as far as the eye could reach.

The experiences of the constructors of the line to Balaklava exemplify the uniformity in the cost of labour all over the world. The pay of the navvy in Jamaica ranges from one to two shillings a day. To the labourer of the same class in the United States six shillings a day would be paid. And yet the cost of construction is approximately the same in the two countries. In connection with wages and the cost of labour, it was observed, with equal generosity and wisdom, by the president of the railway, that it was desirable that wages in Jamaica should rise from the low standard of one shilling a day, which, though sufficient to provide the bare necessities of life in a genial climate, will certainly not secure to the labourers decent dwellings or any of the benefits of civilisation.

We reached our destination in three hours and a half. On alighting from the train we were received by the leading people of the district, headed by the episcopal clergyman. The party then proceeded to the market-place, where several thousand people had assembled. They had come in from the surrounding districts, dressed in clothes which a stranger might have supposed were their "Sunday best," but which were the costumes of every day. The negress loves the gayest prints that can be supplied from the looms of Lancashire, and the mixture of colours was rich and harmonious. The crowd sang "God Save the Queen" with loyal enthusiasm, and listened with breathless attention to the Governor's address. Not a scowl or a sign of discontent was seen. It is impossible not to like

these amiable and simple people. It should be the pride of England to retain the affection of a race she has emancipated from thraldom. If little of material advantage can be gained from the connection, there is a moral greatness in keeping people who need it under our protecting care. To the negro, leaders are essential. In the neighbouring island of Hayti we see how low men may fall without the helping hand.

Sir Henry and Lady Blake have much at heart the establishment of a marine biological station at Jamaica. Nothing of the sort is at present in existence in tropical latitudes, and the constant current of the Gulf Stream will, it is believed, bring to the station at Jamaica a rich treasure of specimens of the marine life of the Atlantic in low latitudes. The project will, it is hoped, be liberally aided by the Imperial Government and by personal contributions. It has been warmly commended by Professor Huxley, Professor Ray Lankester, Professor Flower, and Lord Rosse, and has been taken up in the United States.

March 8th.—Weighed at 6 A.M. Steamed down the bay to Port Royal. Walking through the naval hospital, and over the adjacent space of well-drained ground belonging to the war department, washed by the waves, and with an atmosphere freshened by the daily breezes from the sea, it is difficult to realise the causes which make the place unhealthy. Proceeding to sea, we encountered a strong trade-wind, and off Morant Point had a hard struggle for a couple of hours. In the afternoon we steamed pleasantly along the north coast of Jamaica. The mountains rise to a height of 7,000 feet, their slopes broken by deep ravines, and covered with the richest tropical vegetation. The lower levels, near the coast, are of great fertility, and sugar is extensively grown. At 5 P.M.. we made the entrance to Port Antonio, and shortly afterwards were safely moored in its land-locked waters. The scenery of the harbour is exquisite. The town is charmingly situated on a peninsula, dividing the harbour into two parts. Rocks jut out from the shore in many places. The vegetation is most luxuriant. Among the trees are seen the church and the straggling dwellings clustered round it, forming a delightful picture.

March 9th.—Landed at 6.30 A.M. Port Antonio is a principal place of shipment for the large supply of bananas now furnished by Jamaica to the United States. A steamer and several schooners were loading their cargoes of fruit. An air of plenty and happiness rests on this lovely spot. We anchored at noon at Ocho Rios, a favourite anchorage of Her Majesty's ships on this station, less land-locked than Port Antonio. If the foreground has not quite the charm of our last anchorage, the distant views are supremely beautiful. From this port we took our departure in the afternoon for Cuba.

Favoured by the trade-wind, we entered the harbour of Havana

at 8 P.M. on March 14th. The town itself has been well described by James W. Steele, in a recent volume, as "a low-lying city, of parti-coloured architecture, the walls of which are red, blue, and yellow; a city in which there is not a chimney, a cooking-stove, a four-storey house, or a side walk 3 feet wide; and yet a city of near 300,000 souls." Havana is utterly without shade. In its mean and miserable plazas not a tree is seen of growth sufficiently luxuriant to give the smallest protection from the rays of a burning sun. The throng in the streets is a motley gathering of Spaniards, negroes, Cubans and Chinese. Smoking is the universal occupation in this land of indolence. The spacious and well-sheltered harbour is entered by a narrow channel, commanded by the guns of the Spanish citadel, or Moro. Beyond the entrance, it spreads into two spacious anchorages, divided by a peninsula, on which are erected large sheds and storehouses. The flag of the Spanish Admiral was carried on a powerful cruiser; and seven smaller vessels, ranging from the sloop to the gunboat, were anchored round the flag-ship. Steamers of the largest class enter and leave Havana daily, communicating with Cadiz, St. Nazaire, Colon, Tampa and New York. A numerous fleet of three-masted schooners, under the American flag, is always lying here. Our immediate neighbours were some fine barques, which bring petroleum from the States and return with cargoes of molasses. The harbour is indescribably filthy, and in the hot season most unhealthy. Visitations of yellow fever are frequent and severe. The sanitary conditions will be materially improved by cutting a channel from the head of the harbour to the sea.

March 15th.—Went by train to Matanzas, starting at 6 A.M., and arriving at our destination, a distance of some seventy miles, in two hours and a half. The railway is in excellent order, and well worked, with American rolling-stock. The scenery presents no striking features. The riches derived from cultivation are not largely bestowed upon the labourers. The dwellings of the small farmers and field-hands consist of twigs and bark, this imperfect shelter being shared with the pigs and poultry. The family form a group round their humble shed, clothed wretchedly, yet evidently not enduring the pinch of poverty as it would be felt under a less serene sky. Here and there the railway passes a sugar-estate, usually well equipped. Mr. Steele states in his Cuban sketches that some sugar-estates employ from 500 to 700 hands, and work 400 head of oxen, besides mules and horses. They make their own gas, lime, and bricks, and construct their own railways. A considerable acreage is devoted to the cultivation of the plaintain. Every kind of vegetable is grown in abundance. At Matanzas we found a string of volantes awaiting our arrival. A volante is a specially Cuban invention. It carries you over the most uneven roads with the least possible shaking and jolting. It may be described as a small cabriolet mounted on a huge

pair of wheels, and drawn by two mules, one being yoked to elongated shafts, while the other, ridden by a postilion, is loosely attached to the vehicle by traces of such length that the tail of the postilion's horse is level with the nose of the wheeler. A short drive brought us to the summit of a hill, where we alighted, and, under the welcome shade of a row of laurel trees, looked down on the bay filled with American three-masted schooners. From the port of Matanzas a large quantity of produce of the island is shipped. Descending to the harbour, and following the shore for a distance of four miles, we arrived at the stalactite caves, which are the great natural wonder of these parts.

In bidding farewell to Cuba, a few words may perhaps be said about the Government. The casual visitor cannot fail to be impressed with the evidences of inefficient administration. The fiscal policy is intensely exclusive. The taxation is heavy, and the Government absolutely despotic. The police maintain a system of intolerable espionage. Every salaried servant of the local government is a Spaniard, who regards Cuba as a vassal state, over which Spain has unlimited rights, without reciprocal duties or obligations. The system has already severed all her noble settlements in South America from the mother country. In time it must involve the loss of Cuba.

On *March* 16*th* a moderate trade-wind was blowing, to which we made sail for the Chesapeake. The atmosphere was serene and balmy, the sky almost cloudless. We were in company with several fine three-masted schooners. At noon the next day we had made good a distance of 125 miles against a fresh north-east trade wind, but assisted by nearly sixty miles of current. In the afternoon the wind drew to the eastward, and we were able to lay our course, with sheets eased off, under the shelter of the Bahama Banks; temperature over 80°. The following day it was blowing fresh from the S.W., and on *March* 19*th* we were contending with a revolving gale. Beginning at S., and gradually veering by the W. to N.W., the centre was to the westward and moving to the N.E. *March* 20*th*.—At noon, the weather having moderated, we had made good 202 knots, under all possible sail. In the evening the wind died away to a calm. At midnight we were under steam. *March* 21*st*.—At 11 A.M. made Cape Lookout. At midnight, anchored in Hatteras Cove. *March* 22*nd*.—Weighed at 6 A.M. At midnight made Cape Henry, the southern cape of the entrance to the great inland sea of the Chesapeake. At 3 A.M. on the 23rd, entered the Chesapeake before a fresh breeze from the S.E.; set all plain sails, with studsails. Ran along eleven knots over a sea without a ripple. At 10 A.M., entered the Potomac.

The distance from Cape Henry to the entrance of the river Potomac is over sixty miles, and thence to Washington ninety miles. The Chesapeake, the most extensive and important estuary on the

eastern seaboard of North America, is about 170 miles in length, with a general north and south direction. The width varies from twenty miles to three miles. On the western side it receives the waters of the James, York, Rappahannock, Potomac, Pavtuxent, Patapsco, and Susquehanna rivers. The James is navigable for vessels of 7-feet draught as high as Richmond, and for seventy miles from its mouth for vessels drawing 15 feet. The Potomac is navigable for vessels of 21-feet draught as far as Washington. The other rivers named are all navigable. The total area drained into the Chesapeake is not less than 60,000 square miles.

The facilities afforded by this vast inland sea and its tributaries for the purposes of navigation are thoroughly utilised. The waters are crowded with fleets of schooners—from the five-master, capable of carrying a cargo of 1,500 tons, to the yacht-like little vessel which cannot venture beyond Cape Henry. The labour-saving skill of the Americans is nowhere better illustrated than in the extensive coasting-trade of the country. By adopting fore-and-aft rig, and using a steam-winch for weighing the anchor, hoisting the sails, and working the cargo, it is found possible to navigate with crews averaging one hand, including officers, to every 100 or 150 tons of cargo carried. The coasting-schooners of the United States are smart in appearance, as well as economical in working. The hulls are fine models, broad in beam, with a good sheer, and long, flat floor. The sails are skilfully cut, and are set in a seamanlike manner. During our voyage up to Washington the sky was cloudless, and the sun shone with a pale, soft, yellow light upon the broad river flowing calmly and majestically to the sea. With such lovely sunlight effects the tamest landscapes possess an indefinable charm. At sunset we anchored.

March 24th.—Weighed at 6 A.M. and proceeded under steam. Two years had elapsed since our pilot had last made a trip to Washington, and he had but an imperfect recollection of the buoyage, which is frequently changed. His anxieties did not grow less as we advanced higher up the Potomac. At 11 A.M. we passed Mount Vernon, the justly-venerated home of the noble founder of this great Republic. We saluted the American flag by dipping the ensign and tolling the ship's bell. Shortly after this ceremony had been performed, and when nearly abreast of Fort Washington, we ran aground, owing to our ignorance of the fact that a buoy had been recently shifted from the left to the right bank of the river. Three hours later, on the rising tide, with the engines going full-speed astern, and a heavy strain on a kedge, we succeeded in getting afloat. In the interval we had received two most kind offers of assistance from the *Dolphin*, U.S.N., and from a fine river-steamer, the *Macalister*, returning from a party which had been making a pious pilgrimage to Mount Vernon.

Dined at the British Legation. The Behring Sea difficulty is the question of the hour. To England it is a matter of infinitesimal importance who shall have the right of hunting the seal to destruction. But we have to do our best to protect the interests of our fellow-subjects in Vancouver. There is vague talk of the possibility of war. The masses of the population in Great Britain and the United States will not allow themselves to be dragged into war on a remote issue, which can be easily settled. Under two governments, we are one people, and we shall not for any light cause be drawn into a fratricidal war. To fight on the seal question, which involves, at the utmost, a capital of some £130,000, invested in schooners manned by American subjects, would be an inconceivable folly.

I will not give all the details of a pleasant visit to the American capital. Among the many objects of interest visited, we went over the Navy Yard with Sir Houston Stewart and Captain Langley, our naval attaché. We were received by Captain Rodgers, whose father was formerly naval attaché to the United States Legation in London. The Navy Yard in Washington is practically the gun-foundry for the American navy, and shipbuilding is hardly attempted. The work consists in assembling the different parts of the gun when delivered to the Government from the private trade. The metallurgical industry of the United States is distinguished for ingenuity and enterprise. It will be in a condition in a short time to supply anything for which there is a steady demand for the use of the navy. The new gun foundry is an example of what can be accomplished in this country. The establishment consists of two principal workshops, of truly magnificent proportions. The tools are the perfection of ingenious contrivance. Every idea of the European makers has been examined, and whatever seemed good has been adopted. The work for this foundry has been carried out on a strictly eclectic principle. No prejudices have interfered in the endeavour to attain to perfection. The largest gun in the United States navy is the 13-inch gun. We saw several of these monsters in various stages of advancement. Close and constant attention has been given to the quick-firing ordnance.

In Congress attention is at present concentrated on the silver question. The free-silver men are making a determined effort; but the strong financial influences of New York are against bi-metallism. If the production increases in greater ratio than the production of gold, no action on the part of governments can prevent a fall in the price of silver. In so far as the fall arises from demonetisation, the value may be raised by an increased use of silver for coinage. The combined efforts of the leading financial countries may throw further and valuable light upon the discussion.

Walked through the Capitol. Visited the Supreme Court, the House of Congress, and the Senate. The central hall of the Capitol

is adorned with pictures, perhaps of more merit as historical records than as works of art. We were struck by the thoroughly English type of Washington and his contemporaries. It is touching to see the New England pilgrims presented here, as they are at Westminster, assembled on their knees on the deck of the *Mayflower*. Their memorable voyage is of equal concern to the country they left behind and to that in which they settled.

A reference should not be omitted to the Washington Monument, a simple obelisk of white marble, of perfect proportions, rising to a height of five hundred and twenty-five feet, and standing on a grassy slope by the waters of the Potomac. In its majestic elevation, in its simplicity and beauty of design, it is worthy of the great name it commemorates. No inscription has been attempted. Washington's fame is recorded in the pages of history, and the visitor of to-day is wisely left to his own reflections.

"Nihil ex omnibus rebus humanis est præclarius aut præstantius quam de republicâ bene mereri."

In the afternoon called on Mr. Blaine. He has been suffering from illness and is still confined to the house; but the eye of the distinguished American statesman gleamed with a keen intelligence and an ardour indicating, not dimly, the energy, ability, and fixity of resolve which mark political leaders in a country of free speech. Among many things discussed we turned to the situation at Constantinople. Mr. Blaine thinks that England should resist the advance of Russia, and that our prestige will be lowered if we allow a position, over which we have long claimed a commanding influence, to pass without a struggle under the control of another power. Called on Mr. Secretary Tracey, who presides over the naval department. He is an able lawyer, with no technical knowledge. We talked of ship-building. He thinks big guns, and consequently large ships, indispensable for putting in the heavy blows.

March 30th.—At 9.30 A.M. proceeded under steam down the Potamac without a pilot. I had obtained the latest United States charts from the master of the yacht *Lurline*. During the day we slightly touched the ground twice, owing to our amiability in going out of the main channel to avoid doing injury to the nets of fishermen. At 7.30 anchored between Blakistone Island and Piney Point. The next morning weighed at 5.30 A.M. and proceeded under steam. At noon we were sailing down the Chesapeake, homeward bound, on a bitterly cold day, with an east wind and a rising barometer. At midnight passed out to sea. On the 19th April landed at Plymouth.

In bringing this hasty and imperfect description of our cruise to a close, we may appropriately ask ourselves how far has England been successful in performing the duties which a wealthy and powerful country owes to dependencies in the state of advancement which we have found in the West Indies? Our first responsibility

is that of giving protection from external foes. For this purpose the Imperial fleet is the most effective instrument. There have been intervals in the past when the public was imperfectly informed and too little concerned as to the state of the navy. Those were days when the Government and Parliament were tempted to seek an ephemeral popularity by cutting down expenditure. Economy was carried far beyond the prevention of waste. The main elements of naval power were seriously curtailed. In recent years a firm resolve has been taken to preserve our naval supremacy, and to keep our dependencies secure under the guardianship of powerful fleets.

> "Come the three corners of the world in arms,
> And we shall shock them. Nought shall make us rue,
> If England to herself do rest but true."

Turning to social advancement and material prosperity, it will be evident that those who have lately cruised in the *Sunbeam* have returned with brighter impressions than those formed by some previous travellers. When Mr. Froude visited the West Indies in 1887, extreme depression prevailed, and the gloom which had settled upon those islands is reflected in every page of the narrative of his voyage. In the interval which has since elapsed a happy change has passed upon that portion of our colonial empire with which we have been dealing. All the rudiments of trade, and all the statistics which indicate the improving or declining condition of a country show a satisfactory tendency.

In the work of future development the main service which we can render to our West Indian possessions is to appoint good men to fill the office of governor. In a Crown colony the governor is not a cipher. The legislature and the executive staff are equally dependent on his initiative and control. At the present time the governors of the West India Islands are engaged in a task full of promise for the future, which could only be undertaken under the impulse of disinterested motives and with the support of commanding influence. The work to which I allude is the elevation of the negro population into the condition of peasant proprietors. It is to men in the position of a governor that we look to deal with such a question with a single eye to the greatest happiness of the greatest number. The vast extent of land available for cultivation, but still unoccupied, is one of the most striking features in the present condition of the West Indies. Barbados is the only island at which we touched in our recent cruise, of which it may be said that its resources have been fully developed. In Trinidad, with a total of 1,120,000 acres, 194,000 are cultivated. Grenada has an acreage of 76,653, and 22,000 acres under cultivation. St. Vincent has a total acreage of 85,000, and 13,000 under cultivation. In St. Lucia only one-third of the island has ever been cultivated. In Jamaica the

total area available for cultivation is 2,312,000 acres, the total under cultivation being 612,570 acres.

In the local legislatures of the several islands the planters naturally wield a dominant influence. Their interests and those of the people they employ are not in all respects identical. The condition of the labourers would be greatly improved if they could become more generally peasant proprietors. Legislation for such an object is opposed by the planters, who rightly think that if the negroes become owners of the soil, they would be less ready than at present to work for wages, averaging on a sugar estate a shilling a day for men and tenpence for women. Success in sugar planting, with the low prices now reigning, can only be secured by cheapening the cost of production. If the establishment of a peasant proprietary should create a difficulty in obtaining native labour for plantations, carried on upon a large scale, the importation of coolie labour would be the effective remedy.

The West Indies are scarcely yet ripe for a larger measure of self-government than they at present possess. In the smaller islands, where representative institutions were established, they have been abolished at the request of the people. In the larger islands legislatures are constituted on a hybrid system, combining nominated and elected members. To this rule Trinidad is the principal exception, all the members of Council being appointed by the Crown. The Constitution of Jamaica consists of a Governor, a Privy Council, and a Legislative Council of nominated and elected members. The electoral qualification is the annual payment of twenty shillings in rates or taxes. In Barbados the Government consists of a Governor, a Legislative Council, and a House of Assembly. Under the Franchise Act of 1884 the electorate has been expanded from 1,641 to 4,200 electors. Subject to the Governor's veto, all power over legislation and finance rests with the Assembly. The very able Chief Justice of Barbados, Sir George Reeves, himself a man of colour, considers that in their present state of advancement sufficient self-government has been given to the people. He is equally convinced that the autocratic system of a Crown colony, unchecked by some form of popular representation, is detestable. The advancement of the British colonies in the West Indies has been largely promoted by the free constitution of the local government and by the freedom of commerce.

For the employment of British capital the West Indies offer a field, productive indeed, but limited in extent. Success will necessarily, and in all cases, depend on the local management. Uncounted millions of capital have been raised in the central money-market of London, only to be fooled away in ill-conceived and misdirected enterprises abroad, in localities too remote to be visited by share-

holders, or even by boards of directors, often composed of unpractised and unpractical men. Allusion has already been made to the evils of absentee ownership in Jamaica. It is useless to pour capital into these islands unless competent and vigorous local management has been previously secured. The West Indies afford excellent opportunities for young and enterprising men with a small capital at their command, who would be prepared, after sufficient local experience had been gained, to undertake the business of the planter. There is much to encourage the success which has attended private enterprise in the French West Indies, mainly in consequence of the peculiar assiduity with which French proprietors attend to their plantations.

As a field for colonisation by Europeans, and more particularly by British settlers, the West Indies cannot be recommended. On the loftiest slopes of the Blue Mountains of Jamaica a limited area may perhaps be found where a northern race might enjoy a suitable climate. In the low lands, near the sea, the white man could not live and work. In the high lands of the interior, working in the morning and evening, he could easily accomplish seven hours a day of hard labour. Jamaica is an island in which the experiment of colonisation for our surplus population might safely be tried on a small scale. The promoters of the railway now being constructed, partially on the land-grant scheme, would probably be glad to co-operate in carrying out a project of the nature indicated. In the Cayman Islands, with 4,322 inhabitants, two populations are to be seen side by side. The white population numbers 1,602, the coloured 1,728, and the black 992. The whites have been settled more than a century, and have been a thriving and vigorous people. It is an important fact to notice that a mixed or coloured race cannot perpetuate itself. The children are wanting in stamina and constitution.

Taking a broad view, these lovely islands are only suited to a tropical race such as the negroes, and for these they may be made an earthly paradise. Left to themselves, the people might rapidly degenerate. Under British rule we may, in a not-distant future, confidently hope to see the black population of our West India Islands living in prosperous circumstances, with all the markets of the world open to their useful products, good customers to the British manufacturer, bound to the British Empire by the strongest ties of gratitude, and raised to a condition of enlightenment and civilisation, only as yet attained by a few men who have been greatly favoured.

BRASSEY.

ARE INDIVIDUALLY ACQUIRED CHARACTERS INHERITED?

II.

The next point discussed by Mr. Spencer is the mode in which the eyes of the Proteus of the Carniola caverns have been reduced to a rudimentary condition; his argument being, that, unless the reduction in size by disuse was inherited, there is no means of accounting for the almost total disappearance of the eyes. It may be stated that the views held by the followers of Weismann in this country are, first, that as natural selection is always at work to keep all important organs when in use up to their full size and efficiency, the withdrawal of natural selection when the organ ceases to be used, termed by Weismann *panmixia*, will, by allowing the most imperfect as well as the most perfect eyes to survive, reduce the average size and quality considerably. Then comes the consideration that in total darkness such a delicate organ as the eye would be subject to frequent injury, producing inflammation, and either directly or as a secondary result, death; thus again weeding out those with the largest and most prominent eyes, or those which kept them open habitually in the effort to see. And, lastly, there would come into action what is called economy of growth, the diminution of any useless, but complex, organ being beneficial, owing to the saving of material and growth-power in building it up.[1] It is with this last factor that Mr. Spencer deals, and endeavours to show that the economy would be infinitesimal, because the weight of the eye of this animal is so small. He supposes the reduction to be effected in two thousand years by decrements of one two-hundredth part every ten years; and taking the original eye to have weighed ten grains, he almost laughs to scorn the idea that such an almost infinitesimal amount of diminution at any one time could have given the animals in which it thus diminished a greater chance of survival.

Now, there are two very serious oversights which entirely invalidate this argument. The eye is treated as if it were mere protoplasm weighing so many grains, instead of being a highly complex organ with which muscles, blood-vessels and nerves are connected and co-ordinated in greater proportion perhaps than in any other organ. I presume the original eye of the ancestral Proteus must have had

(1) I have omitted Professor Ray Lankester's suggestion, of a process of selection owing to those individuals with more perfect eyes occasionally finding their way out, because the ancestral immigrants were probably carried far into the caverns by torrential floods, and could only escape by following the water to some of its outlets, success in which would not depend on special acuteness of vision.

its three distinct sets of nerves—those of vision, of sensation, and of motion—involving in their normal use the expenditure of a considerable amount of nervous energy, besides the various muscles and bloodvessels connected with it. To measure the benefit to be derived from the entire suppression of such a complex organ, when it became useless, as no more than from the gain of so many grains of simple muscular tissue, appears to me to be an extraordinary misconception of the conditions of the problem.

The second oversight is in ignoring the tremendously severe struggle for existence that would necessarily arise when an animal which had heretofore had the full use of eyes in obtaining food, avoiding danger, and finding its mate, had to enter upon a perfectly new kind of existence, in total darkness, and, moreover, in a place where all kinds of vegetable or animal life were so scanty that the wonder is how those individuals who were first carried into the cavern escaped starvation. Under such conditions as these, would not the various modes of reduction of the eyes above suggested act with an energy and rapidity far beyond their action under normal conditions? And might we not expect the most extreme variations in the direction of the abortion of the eye and of its connected tissues, muscles, and nerves, to have an exceptional value when the food required for building up the organism could only be obtained with the greatest difficulty and in the most limited quantities? Under such conditions I should not be surprised if the greater part of the actual eye-reduction had been effected in fifty or a hundred years, instead of in two thousand. But whether this were the case or no, it will, I think, be admitted that to ignore all these very exceptional conditions, and to argue the case as if the whole matter were one of the economy of a few grains of tissue to an animal whose food-supply was normal, does not add anything to the evidence for the inheritance of acquired variations.

The only other argument of importance adduced by Mr. Spencer is that drawn from the giraffe. This argument was first stated at some length in his essay on *The Factors of Organic Evolution*, in 1886; and it is now repeated and enforced by some additional considerations, although, Mr. Spencer says, he has met with nothing that can be called a reply; and he adds, that my contention (in *Darwinism*) that what he alleges cannot be done by natural selection has been done by artificial selection—assumes a parallelism that does not exist. I therefore propose to examine this case more carefully, and shall show that the parallelism I assume is a very close one, and that natural selection is, as Darwin himself believed, fully competent to account for the facts.[1]

(1) *Origin of Species*, p. 177, and more fully and with admirable force and clearness in *Animals and Plants under Domestication*, vol. ii. p. 221.

Mr. Spencer's argument is, briefly stated, that to develop such an animal as the giraffe from some antelope-like ancestor requires many coincident and co-ordinate variations of different parts—each increase in the length of the neck, of the head, of the fore or hind limbs, or of either of the bones composing them, requiring corresponding increase of muscles, nerves, and blood-vessels, not only of such as are immediately connected with the enlarged limb, but often in remote parts of the body whose motions are necessarily co-ordinated with it. He maintains that any increase of one part without the adjusted increase of other parts would cause evil rather than good; and that want of co-adaptation, even in a single muscle, would cause fatal results when high speed had to be maintained while escaping from an enemy. Then, again, not only the sizes but the shapes of the bones have to be altered as the muscles are increased in size and the motions of the various parts of the body change; and this introduces fresh difficulties which are, again and again, declared to be insurmountable. And after elaborating all these alleged difficulties at great length, he arrives at the conclusion that, unless the increase or modification of parts, due to use by the individual, is inherited, there can have been no evolution.

Now, I believe, and hope to be able to prove, that these accumulated difficulties are almost wholly imaginary, and arise from a neglect to consider known facts of variation and known methods of adaptation. Mr. Spencer accepts the fact that I and others have laid stress upon, that individual variations are continually occurring in all parts of the organism and in all directions, and that the variations of each part are often independent of each other; but he ignores the equally undoubted fact that certain parts are correlated, and very often do vary simultaneously. The diagrams I have given in my *Darwinism* show this clearly. A considerable number of parts, as the wings and tail, tarsi and toes of birds, usually vary together, either to the same or to a different amount; but all of them sometimes vary independently, and even in an opposite direction to each other; and such irregular variations evidently afford the very best material for natural selection to work upon, since any kind of variation, either coincident or independent, can be rapidly accumulated. This fact alone does away with half of Mr. Spencer's difficulties.

Another considerable portion of the supposed difficulties is created by assumptions which pervade his articles but which are opposed to the facts of nature. He tacitly assumes that natural selection works by the preservation of large individual variations—"sports" as they are often termed; whereas both Darwin himself and all his followers entirely reject these as causes of modification of species (except perhaps in rare cases where they may initiate new organs), and rely

wholly on those individual variations which occur by thousands and tens of thousands in every generation. Mr. Spencer continually uses such expressions as, "This one has unusual agility"; "that one develops longer hair in winter"; "another has a skin less irritated by flies"; "it is needful that the individual in which it occurs shall have more descendants"; "a variation . . . might sensibly profit the individual in which it occurred"; "would an individual . . . survive"; "favourable variations . . . would disappear again long before one or a few of the co-operative parts could be appropriately varied." The same assumption pervades the writings of most of the opponents of Weismann. Thus Mr. Keeler, in the work already quoted, says, referring to the modification of organs by variation and selection only: "This explanation is open to two objections: first, the one already raised by Mr. Spencer, that before the second correlative variation appeared the first would be lost; and, second, the suggestion of Cunningham in regard to assuming that use could develop the character required, but that the individual thus favoured could not transmit the variation, but that posterity must wait for the same variation to arise spontaneously. This hypothesis is so forced, illogical, and absurd, that so long as a better one can be found it should be adopted."

Now all this implies that there are but few variations occurring at long intervals; the facts being that, in populous species, every generation affords many thousands of variations of every observable part and organ; whence it follows that the individuals of every such species can be divided into two sets as regards each organ or each group of parts, such as those with a longer and those with a shorter neck, those with neck and legs longer and those with the same parts shorter. In the latter case perhaps a quarter or an eighth only of the whole population would be found in each category; but as, in most cases, not one eighth part of those born each year can survive, this would be ample. It will be seen that the facilities for modification are thus indefinitely greater than the expressions and arguments of Mr. Spencer and his supporters assume them to be.

Another tacit assumption is, that in nature all the individuals of a species have their parts so perfectly co-ordinated that any increase of one part only would disturb the harmonious adjustment and be a disadvantage. But this is totally to misconceive the situation. The adjustment of parts is a rough working adjustment, sufficient for the purpose of maintaining life, but capable of being improved (or deteriorated) by very many slight modifications of single parts. To illustrate this general adjustment, let us suppose we have before us for comparison all the county elevens of English cricketers. We shall have a body of some hundreds of picked men, all of whom are probably above the average as runners, are exceptionally quick with

eye and hand, and are all more or less active and muscular. They vary, of course, in their special capacities, whether as batters, bowlers, fielders, or wicket-keepers, but it is certain that most of them would take a high place in almost any form of athleticism to which they chose to apply themselves. Yet these men would not resemble each other closely in stature or proportions. We should find among them tall and short, slender and stout; and among those of the same height proportions would differ, some being long-legged, others short-legged, and perhaps no two of the lot would be found to have exactly the same proportions in all measurable parts of the body. We are thus shown that a high average result of strength and activity can be reached by very various combinations of the bones and muscles of the limbs and other variable parts, and we can hardly doubt that almost all of these men could be rendered still more efficient cricketers or athletes by some slight improvement in their organisation. One would run better if his legs were longer, another would throw and bowl better if his arms were shorter and more muscular; and such changes would be effective because these parts are now imperfectly co-ordinated with the rest of the body.

The considerations suggested by this illustrative case immensely increase the facilities for the improvement of any faculty required by natural selection, and they enable us to understand the process by which both natural and artificial selection have been able to modify the form and qualities of so many animals. It is not, as Mr. Spencer's argument assumes, by the selection of improvements in any special bone, or muscle, or limb that these modifications have been effected, but by *the selection of the capacities or qualities resulting from the infinitely varied combination of variations that are always occurring.* Horses have been improved by preserving the swiftest for racing, the strongest for the plough, and a combination of speed, endurance, and jumping for the hunting field. Improved combinations do occur in all these classes in every fresh generation; and breeders know that from, say a hundred half-wild horses, whether from the prairies, the pampas, or the Australian bush, careful selection could obtain—probably in less than a century—very excellent representatives of each of the three above-mentioned types of horses.

Recurring now to the case of the giraffe, whose whole organisation has been modified so as to obtain an almost unlimited feeding-ground from bushes and trees far above the limits eaten off by the tallest antelopes and buffaloes, we see that numerous successive modifications have all worked in this one direction—the large size, the enormous shoulders giving a sloping back, the correspondingly long neck, the long head, and the elongated prehensile tongue, so that a full-grown male giraffe can feed up to twenty feet above the ground.

In considering how this was brought about we must remember that the struggle for existence is very intermittent in character. A severe drought causing a scarcity of herbage, and leading the antelopes and buffaloes to compete with the giraffes for the foliage near the ground, may occur at intervals of from twenty years to a century. When such droughts occur, animals that can feed half a foot higher than others would survive; not one individual here and there, but the tenth or twentieth part of the whole population in a given district, amounting, perhaps, to many thousands of individuals. These taller survivors would go on increasing for another long period, in the meantime being subject to the usual struggle with wild beasts and other dangers, natural selection keeping the whole organism up to the mark, till another period of scarcity led again to an elimination of the shortest. Those that survived would not be all alike; some would gain the increased feeding power by higher shoulders, some by longer neck, or longer head, or more extensible tongue, or by various combinations of these variations; and the regular elimination of the weaker or less active in the intervening periods of abundant food, together with the equalising result of constant intercrossing, would produce a race possessing the one essential character of lofty feeding power by means of the altogether unique combination of characters found in the giraffe. There has been ample time for the process, probably the whole of the pliocene period; and in view of the known amount of variability in all parts of the organism, and the intermittent nature of the struggle for existence, there seems far less difficulty in the production of this animal than in the production of the beautiful and perfectly co-ordinated greyhound in an almost infinitely shorter time.

And now we see how very close is the parallelism between artificial selection and natural selection, and how purely imaginary are the difficulties of co-ordination set forth so elaborately by Mr. Spencer. For, by the preference of some men for swiftness in their dogs, of others for those which followed game by sight rather than by scent, of others again for elegant slenderness of form, the greyhound, almost as perfect as we now see it, had been already developed in the time of the ancient Egyptians from some wolf-like wild ancestor. Men have always preserved qualities, not single characters, just as nature preserves the qualities of speed, strength, agility, acute scent or vision, not any particular variation of bone, muscle, or member. The two modes of selection are thus strictly analogous and strictly comparable; and the whole elaborate structure of "insurmountable difficulty" founded by Mr. Spencer on the supposed impossibility of adjustment of parts by variation and selection, falls to the ground. As a matter of fact, there is a sufficiency of *useful* variation always present in each succeeding generation to increase any required life-

preserving quality, all theoretical objections to the contrary notwithstanding.

In his *Principles of Biology*, Mr. Spencer discussed, briefly, the smaller jaws of civilised races as only to be explained by the inheritance of successive reductions produced by the use of softer food, since any advantage to be gained by each step of the process would be too minute to have any appreciable effect in saving life under any possible circumstances. In his *Factors of Organic Evolution* he recurs to the subject, in order to exclude two imaginable causes which he had not before referred to—a correlation of decreased jaw with increased brain, which he rejects, because many small-brained people are also small-jawed, while others distinguished for their mental power have yet jaws above the average size: and sexual selection, which he also rejects for obvious and valid reasons.

Subsequently, the same question was discussed by Mr. W. Platt Ball, in his excellent little work, *Are the Effects of Use and Disuse Inherited?* He shows that the difference of size is less than has been supposed, while the great range of variation in the size and weight of the jaw, both in civilised and savage races, renders all comparisons useless unless founded on a very large number of specimens. He then accounts for the reduction that actually exists by a variety of suggested causes, some of which are undoubtedly open to criticism. He also states that he "allows for a reduction proportional to that shown in the rest of the skull," because some other agency than disuse must have reduced the thickness of the skull, and, presumably, of the jaws also; after which allowance there remains but a small further reduction of the jaws to be accounted for.

This portion of Mr. Platt Ball's work called forth a very minute criticism from Mr. F. Howard Collins, which, being declined by the editor of *Nature*—as the author tells us in his preface—has been published in pamphlet form. As Mr. Collins is the author of *An Epitome of the Synthetic Philosophy*, so well done as to have received the approval of Mr. Spencer himself, he may be supposed to speak with some authority when he undertakes to attack one of Mr. Spencer's critics; and for this reason I think it advisable to point out the erroneous and illogical principles on which his whole argument is founded. In order to compare the jaws of Australians with those of recent Englishmen, he takes one linear dimension of the jaws, cubed to get the proportionate bulk, and compares this with the cubical contents of the skulls to which the jaws belong, that is, with the mass of the brain. Now, as the Australians have very much smaller brains than Europeans, to compare the jaw with the skull-capacity is to make it appear much larger in the Australian and smaller in the European, even when the actual size is identical. Why should the jaw be measured by the brain as a standard, any

more than the foot, the hand, or the stature? On the same principle the Australians might be proved to have very large hands, and to be much taller than Englishmen, whereas, like most savages, they have rather small hands, and are hardly our equals in stature. The only reasonable way of comparing the jaws of two races so nearly equal in stature as Australians and Englishmen, is to compare them directly. The jaw is really a limb, used in the mastication of food to supply the whole body with nourishment, not the brain only; and its true organic relation is with the body, not with the brain-case to which it is attached, still less with the brain itself. By the illogical process he uses, of first increasing the linear dimension of the Australian's jaw in the same proportion as the English skull is larger than the Australian skull, without attempting to ascertain whether the depth and thickness increase in the same proportion, and then cubing this dimension, he arrives at the amazing result that the Australian's jaw is very nearly double the bulk of the modern English jaw! Mr. Platt Ball, on the other hand, finds the weight of the latter to be only 5 per cent. less, when reduced in proportion to the lighter skull, the actual difference being 17 per cent.; but both results are founded on far too small a number of specimens to be in any way trustworthy. Mr. Collins then replies, and I think forcibly, to two of Mr. Ball's suggested causes of the decrease—lightness of structure facilitating agility, and sexual selection—but he passes over the two which have most weight, the one as "a tentative suggestion," the other altogether unnoticed; namely, cessation of selection, and increase or decrease caused by use and disuse in the individual. The first, Mr. Collins says, with a strange misapprehension of the point, would only affect the weight and thickness of the jaw, not the peripheral measurement which he has used. But why should not the size—the length and depth—of the jaw be quite as important as the thickness and strength? The greater length and depth of the jaw would be effective in giving more room for the attachment of the muscles on which the whole efficiency of the masticating organ depends, as well as by affording space for the full development of large and well-formed teeth. In the early stages of human progress, when much indigestible food had to be eaten, large bones to be gnawed, and meals to be hastily devoured, the large and powerful jaw would be preserved by natural selection. But civilised man has no need for such a bulky apparatus, hence the average size of the jaw would fall "from the birth-mean to the survival-mean," to use Mr. Lloyd Morgan's neat expression—small-jawed men being at no disadvantage in the struggle for existence; whence the occurrence among us of very small and very large jaws, though with a lower average than among the Australians.

The other point—and I believe a very important one—is the

diminution, *in the individual*, due to comparative use and disuse. From the time the first teeth are obtained, the jaws are used in mastication many times a day, and the difference in the amount of exertion and strain on the muscles and bone, in the case of a civilised European living mostly on soft or well-cooked food, and the savage chewing up tough roots and tearing half-raw flesh from the bones of almost any animal he can kill, must be very great. This difference acting while the bones of the face are growing, in the period between childhood and manhood, and to a less degree, perhaps, on to middle age, would certainly lead to a difference of size—and probably to a large portion of the difference that actually exists—between the jaws of savage and civilised man. If we consider, further, that concurrently with the diminished use of the jaws there was an increased use and development of the brain, it may well be that the process of reduction of the former was facilitated by the diversion of a portion of the supply of arterial blood to the latter.

These two causes—cessation of selection or *panmixia*, and the effect on the individual of greater or less exercise of the parts—are admittedly real causes, their effects can be roughly estimated, and they seem fully adequate to account for the comparatively small difference that actually exists between the jaws of the lowest and highest races now on the globe.

The question of purely individual variation, requires further consideration, because, owing to the unhesitating acceptance of the inheritance of acquired characters by Darwin and most contemporary naturalists, the important bearing of facts proving the effect of external conditions on individuals has been, and still is, altogether overlooked. Two cases in particular are continually quoted by the advocates of inheritance, as if they were in some way antagonistic to Weismann's theory, whereas they really support that theory, and almost prove it. The first is that of the Texan species of Saturnia (Emperor-moth) which feeds on the black walnut (*Juglans nigra*), and which, when pupæ were brought to Switzerland and the larvæ raised from the eggs laid by the moth were fed on the common walnut (*Juglans regia*), produced moths which differed so much from the parent both in colour and form that it appeared to be a new species. Darwin, writing to Wagner of this case, says: "When I wrote the *Origin*, and for some years afterwards, I could find little good evidence of the direct action of the environment; now there is a large body of evidence, and your case of the Saturnia is one of the most remarkable of which I have heard." In referring to this letter, Professor H. F. Osborn, in one of the most intelligent discussions of this question I have yet seen from an American author, says, "Darwin distinctly abandoned the utility

principle in the case of Saturnia"; [1] and Mr. D. G. Elliott, in his presidential address to the American Ornithologists' Union in 1891, quoted the same case as affording striking evidence of the transmission of acquired modifications.

Professor Lloyd Morgan (in his *Animal Life and Intelligence*, pp. 163—166) sees clearly that this and other cases do not prove more than a modification of the individual; but it seems to me to go further than this. For here we have a species, the larvæ of which for thousands, perhaps millions of generations, have fed upon one species of plant, and the perfect insect has a definite set of characters. But when the larvæ are fed on a distinct but allied species of plant, the resulting perfect insect differs both in colouration and form. We may conclude from this fact, that some portion of the characters of the species were dependent on the native food-plant, *Juglans nigra*, and that this portion changed under the influence of the new food-plant. Yet the influence of the native food had been acting uninterruptedly for unknown ages. Why then had the resulting characters not become fixed and hereditary? The obvious conclusion is, that, being a change produced in the body only by the environment, it is not hereditary, no matter for how many generations the agent continues at work; in Weismann's phraseology, it is a somatic variation, not a germ variation.

The other case is that of the brackish water shrimp, *Artemia salina*, which, by the water becoming gradually salter, was changed into what had before been considered a distinct species, *A. milhausenii*; and the reverse change was also effected, the modification in both cases being in proportion to the alteration in the salinity of the water, and therefore spread over two or three generations. Here too there seems to be no heredity, however long either form has been submitted to the influence of the modifying medium.

Similar to this is the case given by Mr. Thistelton Dyer (*Nature*, vol. xliii., p. 581) of the tissue-papery leaved *Arabis anachoretica*, which grows in hollows of rocks sheltered from sun and rain, but which, when cultivated at Kew, changed at once to the common *Arabis alpina*, of which it is a modification due to the action of the environment on the individual plant. How different is this from the behaviour of plants which have been developed by germ-variation and selection, such as most of the true alpine plants which retain their compact dwarf foliage and large flowers under such different conditions when raised from seed in our gardens! Other species, however, which have a considerable range and become dwarfed in some localities by adverse conditions of drought, wind, or other causes, at once grow to a larger size when cultivated and sheltered.

(1) *Are Acquired Variations Inherited?* An Argument, by Henry Fairfield Osborn, in *The American Naturalist*, February, 1891.

Many of our British botanists are now applying this test to distinguish those forms of our native plants which owe their peculiarities to germ-variation from those which have been modified individually by the action of the environment. We are often unable to decide by mere observation to which class any particular variety or local form belongs, but cultivation at once determines the point; for while the former transmit their peculiarities, however minute these may be, to their offspring, the latter revert at once to the parent form. Mr. Beeby has proposed to call the former class "intrinsic," the latter "extrinsic" varieties, useful terms which indicate that the one are due to an internal cause, are therefore stable, and show us the incipient stage of species-formation; while the other is merely an external modification of the individual which has no stability, being wholly due to the direct action of the environment. It is very important to note the sharp distinction between these two kinds of varieties, externally so alike though having a fundamentally different origin. There appears to be no gradation from one to the other. The individually acquired or *extrinsic* character, however long it may have persisted, disappears instantly when the special environment that produced it is changed, as in the case of the Texan Saturnia, the papery-leaved Arabis, and many similar cases; while *intrinsic* characters—those due to germ-variation—however slight they may be, as in the various races of mankind, many of the closely allied species of moths, and some of the sub-species or varieties of our native plants, preserve their characteristic features under greatly changed conditions.

The cases now given of change in the individual due to external causes and often of a very marked character, render it exceedingly probable that a large portion of the observable difference in the size of the jaws of civilised man and of some domesticated animals, as well as all those changes produced more or less suddenly by a change in the environment, are mere individual effects which are not hereditary; while, whenever such changes appear in species that have long been subjected to uniform conditions—as in the case of the Texan Saturnia—they indicate that some portion of the external peculiarities of those species were individually acquired characters, and therefore afford strong evidence of the non-inheritance of such characters.

I have now fairly met, so far as the space at my disposal will allow, the strongest arguments of the advocates of use-inheritance as a law of nature and as a factor in evolution. I have shown that the effects which it ought to produce in the case of mankind do not appear, and that breeders of animals do not recognise it as a factor to be taken account of. The alleged cases of inherited habits or

instinct, supposed to be useless, are shown in one case to be not necessarily so; while all such cases involve so many elements of uncertainty or ignorance that no conclusion of value can be drawn from them. The alleged difficulty of the origin of horns except by the inherited effect of blows and pressures, I have shown to be founded on error as to fact; and their origin by normal variation, and development where useful by selection, to be supported by the frequent occurrence of dermal excrescences in many animals. The case of the mammalian teeth has been shown to be quite explicable without use-inheritance, the mode of action of which is, in this case, itself inexplicable. Mr. Herbert Spencer's three main arguments to prove the inadequacy of natural selection have been fully discussed, and have, I venture to think, been shown to be entirely inconclusive, since they are either founded on comparatively unimportant and adventitious facts, or on a neglect of some of the most important conditions under which natural selection in its various forms comes into play.

In order to render the position clearer I wish, before concluding, to say a few words on the general question. Those who are termed Neo-Darwinians do not yet maintain that use-inheritance (to use Mr. Ball's convenient term) does not exist, but merely that it has not been proved to exist. Whether it actually occurs—and if it occurs at all, I believe, it must occur constantly—can only be proved either by very careful and long-continued experiment, or by the demonstration of some theory of heredity which either necessarily includes or excludes it. But even if it does exist I myself believe that it is altogether unimportant as a factor of evolution, and that we have evidence sufficient to prove that natural selection is not inadequate for want of it.

When we urge that the effects of use-inheritance, if it exists, ought to be abundantly visible in some such ways as I have suggested in the early portion of this article, its advocates reply, that only a small portion of what is acquired by the parent is transmitted to the offspring, and that its effects may, therefore, only become visible after a long series of generations; but as it is necessarily cumulative it must produce a considerable result in the course of ages. All we can say in reply to this is, that it is pure hypothesis, and that, if true, it may serve to explain the difficulty of obtaining evidence in its favour, but at the same time it indicates that use-inheritance can be of no value as a factor in evolution. Variation is so large and so constant that any required character can be greatly modified in a very short time, of which Darwin gives many illustrations. The comb of the Spanish cock was made upright, the comb and wattles of the Polish fowl were completely abolished, and the average weight of ducks was raised from four pounds to six pounds in a few years.

Our sheep, pigs, and cattle were wonderfully improved, and often completely changed in form between the latter portion of the eighteenth and the first half of the present century, while many of our flowers and fruits have been nearly doubled in size, and greatly improved in form and colour in the same period. But natural selection has a great advantage over artificial selection in the enormous scale on which it works, giving much greater scope for the occurrence of favourable variations in large numbers. Thus, whenever some great change of conditions led to a more severe struggle for existence, the modifications of structure needed for adaptation to the new environment would soon be effected without any aid from use-inheritance.

That this is the fact is further indicated by the large range of characters and adaptations that must have been produced by variation and selection alone, since use-inheritance cannot possibly have had any part in their development. Mr. Spencer admits that there are many such, but does not recognise the weight of the argument which they afford against the need of use-inheritance as a factor in evolution. It is well, therefore, briefly to enumerate some of the more important of them. We have already referred to the teeth, in their numerous peculiarities of form, structure, and mode of growth, many of which are quite removed from any direct influence of use in their production. Still less can we impute the hair to such causes, in its varieties of length, thickness, texture, and colour, with its occasional modification into protective armour, such as plates, scales, or spines, or into offensive weapons, such as the horns of the rhinoceros. The bills of birds, in such strange modifications as are presented in the duck, the spoonbill, the heron's spear, the woodpecker's chisel, the snipe's sensitive borer, the enormous but very light bill of the toucan, the powerful nut-cracking bill of the cockatoo, and many others, all evidently adapted to special uses, but by no possibility developed by those uses; the wonderful modifications of the stomach in ruminants, and especially in the camels; the whole series of protective, warning, and recognition colours of animals; the numerous peculiarities of structure and instinct in neuter insects where use-inheritance is absolutely excluded; and, lastly, the whole of the wonderful protective and distributive contrivances of fruits and seeds, and the still more wonderful and more complex adaptations of flowers to insect fertilisation, this latter, be it remembered, not under the pressure of an individual struggle for life, but only apparently to obtain an increase of vigour and a somewhat more rapid multiplication, giving an advantage over other species in the general struggle for existence.

Even more removed from possible development through use are the special organs of sense, such as the eye and the ear. The complexity of structure in the internal ear is amazing, with its spiral and

semi-circular canals and tubes, its membranes, ducts, and cartilages, its extraordinary stirrup, hammer, and anvil bones, its wonderful rods, hair-cells, and otoliths. It seems like some strange machine, the connection of whose various parts and their mode of action it is impossible to follow. Yet we feel sure that every detail has its use; and we have here an organ the co-adaptation of whose several constituent parts is essential to its utility, and is apparently more difficult to bring about by variation and selection than in the cases where Mr. Spencer thinks it absolutely necessary to call in the aid of use-inheritance. But in this case it is utterly unimaginable that any amount of air-waves impinging on the tympanum can have tended directly to the production of this highly complex and delicately adjusted organ. The case of the ear alone appears to me sufficient to prove that use-inheritance is not required for the development and progressive modification of the most complex and beautifully adjusted structures.

We thus see that there is a wide range of characters and structures, often involving the most beautiful adaptations, in which use-inheritance can admittedly have no share; that even if it exists in other cases it is unnecessary, since it can only give a little help in a process which is demonstrably within the power of variation and natural selection; and that the strongest arguments that have been urged, either to show its supposed necessity or to prove its actual existence, break down on close examination, and in some cases even afford strong evidence against it. Our conclusion, therefore, is, that no case has yet been made out for the inheritance of individually acquired characters, and that variation and natural selection are fully adequate to account for those various modifications of organisms which have been supposed to be beyond their power.

ALFRED R. WALLACE.

THE CHATHAM ISLANDS AND THEIR STORY.

I PROPOSE, in the following pages, to give some account of a visit to the Chatham Islands, a small archipelago in the South Pacific Ocean. Being isolated and of little commercial importance, and still undiscovered of Cook, the modern, they are rarely, if ever, visited by the traveller; even those living in the colony nearest to them know little more of them than the name, and beyond that region I believe scarcely one person in a hundred has ever heard of them. The group consists of about a dozen islets, lying five hundred miles east of Bank's Peninsula in New Zealand, the largest no bigger than the Isle of Wight, and the smallest little more than bare rocky pinnacles rising out of the sea, whither the wandering albatrosses and other ocean birds come home to nest. Ships homeward bound from antipodean ports, southing to the ever eastward-moving Trades with which to round the Horn, may run close past them without sighting them, for the fogs from the Antarctic generally enshroud them from the traveller's view. I fear the ordinary tourist would find nothing of a sensational character to attract him there. Yet these lone isles are the fragments of an ancient vanished land, in whose caves and cliffs the delving hand may gather broken records which, pieced together, with their *disjecta membra* gathered out of the islands to the south, and the continents to east and west, tell a story of the southern seas. It tells of geographic ups and downs, and the vicissitudes of a fauna and flora not less full of interest and incident than the tragic histories of human inhabitants, of which these islands have also been the theatre.

After I had waited long for an opportunity of visiting this outlying group, the desired occasion at last presented itself in the beginning of 1892, and I embarked at Port Lyttelton on the 21st of January in the *Kahu*, the small but seaworthy steamer that keeps these islanders in touch once in three months with the world and civilisation. The journey occupies only about sixty hours, but over the five hundred miles that separate the two lands runs a very cross-sea, on which I can promise to any one longing for a life on the ocean wave, an experience that will go a very long way towards satiating his desires in that direction. Like all things else, our sixty hours of misery were finally ticked off, and at sunrise of the 24th we found ourselves under the lee of the land in the western hemisphere, on a rippleless sea, and beneath the bluest of skies. Ahead lay two low islands, apparently sloping towards each other into the passage between which we were steaming. As we approached nearer, the

two islands resolved themselves into the higher northern and southern westerly-extending horns of Wharekauri (as the natives call the largest member of the group), connected by lower lands forming the enclosing bayleted arch and eastern boundary of Petre Bay, in which our anchorage lay. Running east and west along the northern horn could be seen a chain of pyramidal hills, evidently old volcanic cones, which, though not exceeding 700 or 800 feet in height, assumed, on account of the lowness everywhere of the surrounding lands, the aspect of mountains. The southern horn, the highest part of the island, sloped gradually up towards the south, without presenting any distinctive summit. From much I had heard I expected to find the Chatham Islands a wild, bleak, and generally uninviting speck of land; instead, I beheld from the deck as we ran close along the southern shores of the bay, broad forest patches of that deep dark hue that belongs to evergreen trees, broken by cultivated fields and wide sheep-pastures, with here and there the characteristic wool-shed, marking the settler's homestead, of which often only a glint could be caught from amid embowering creepers and scarlet geraniums. Bathed as the whole landscape that morning was in the sunshine of one of the most perfect of days, it seemed that to be exiled here out of the "care and confusion of the world," could not be altogether an insupportable durance. My hopes rose that I might find here another such Arcadia as that charming out-of-the-world retreat in the Indian Ocean, the Keeling Islands, which I have described elsewhere. Here, however, the larger sphere, the greater scope for independent action, and the different human elements, have evidently interacted differently, and I found on close acquaintance with the islands no such harmonious patriarchate; here we had simply a chip of the colony of New Zealand floated off into the Pacific.

Rounding a bold headland, whose alternate beds of bright red and yellow form a conspicuous blaze of colour in the landscape, we dropped anchor a few yards off the shore in front of a high cliff, beneath which, on the beach, stood all that represented the town of Waitangi—a particularly cold and uninviting public-house, calling itself a hotel, and a less imposing weather-board structure incorporating the resident magistrate's court, the post-office, and the jail. As the approximate date of our arrival was known, the shrill screech of our siren as we drew near apprised the expectant population of our presence, so that by the time the *Kahu* dropped her anchor, quite a crowd, to join which others could be seen hurrying from all sides, had collected on the beach to watch our disembarkation and learn the news we brought, for the arrival of the steamer is a real event in the lives of these people, which few who have not lived for a time so cut off from the world can realise.

The date of my visit nearly coincided with the centenary of the discovery of the islands. It had been intended to celebrate this event with various festivities during the month of January; but the intention had to be abandoned, for throughout the island the influenza epidemic, not regarding their isolation, had attacked almost every inhabitant—and the natives very fatally—so that there was no energy left among them to carry out their programme.

Through the kindness of Mr. Chudleigh, one of the Chatham Island run-holders who chanced to be in New Zealand at my departure, and of Mr. Kinsey, of Christchurch, I had brought introductions to most of the settlers, so that I found a pleasant welcome among them, and was hospitably invited by Captain Hood, one of the oldest residents and largest proprietors in Wharekauri, to make his house my headquarters. From him and from several of the neighbouring residents, especially Mr. Alexander Shand, who visited me several times during the first few days when I was slowly recovering from the effects of my sea voyage, I received a great deal of very interesting information. Mr. Hood had taken part in some of the more stirring events in the island's history, while Mr. Shand, who was born there, is perhaps the only living authority on the language and traditions of its now nearly extinct original inhabitants.

The Chatham Islands were discovered by Lieutenant William Broughton, of "His Britannick Majesty's brig *Chatham*," when parted by a storm from the *Discovery* on the way to Otaheite from New Zealand. The *Discovery* and the *Chatham* were then conveying the expedition sent to explore the north-west coast of North America, under command of Captain Vancouver. "We displayed the Union flag," the Lieutenant reports, "turned a turf, and took possession of the island, which I named Chatham Island (in honour of the Earl of Chatham), in the name of his Majesty King George the Third, the 29th of November, 1791." His visit was of short duration, for as the natives, who had never seen a ship before, lost one of their number in resisting his landing, he was anxious not to be the cause of further troubles to them, and so he left hastily without being able to gain much information about his new annexation. He describes the natives he saw as a "cheerful race, numerous and healthy, full of mirth and laughter, dressed in seal-skins or mats, and courageous enough to resist his landing." They called themselves Tuiti, so Dieffenbach tells us, but the name by which they are best known now, and the term by which they speak of themselves, is Moriori. Some years after their discovery, the islands became the rendezvous of the English and American sealing and whaling fleets in the South Pacific—a disastrous circumstance in the history of the natives. These vessels had from time to time among their crews numbers of

Maoris (the natives of New Zealand), whom they had engaged in various capacities in that colony. About the year 1834 it so happened that there were serving on board one of these whalers which had touched at Wharekauri, the chiefs of two Maori tribes who were then occupying the district where the city of Wellington now stands, and who, having been driven thither from their ancestral regions by the more powerful Waikato tribe, were living in much discontent. What they saw during the voyage greatly impressed them, and on their return they dilated to their people on this "island to the eastward teeming with land and sea birds of all kinds, mutton birds in crowds in holes in the peat, and albatrosses innumerable in the outlying rocks, with fish abundant along the coast, and eels swarming in the lakes. On the land there were forests of karaka trees, while the inhabitants were numerous, possessed of no weapons, and ignorant of how to fight." This was evidently to them all in their dejected frame of mind a land much to be desired and eagerly to be coveted, but one which they could little hope to reach in their own canoes. Fortune, however, seemed to favour them by sending at this juncture a trading vessel, the *Lord Rodney*, to their very doors. They saw their opportunity and took advantage of it. Enticing the captain to Somes Island on pretence of treating with him for a freight of flax lying there, they made him a prisoner, and under threat of death compelled him to agree to transport them to the Chatham Islands. On their side they bound themselves to supply the ship at their cost with a full freight; but the captain might have had in payment for this service the whole of the present site of Wellington City, to-day worth millions sterling, for that block of land was the recompense they first offered. The relatives of that officer, I suspect, rather regret now his inability to foresee the future. The number of Maoris eager to emigrate to the Chatham Islands was found too large for the *Lord Rodney* to accommodate at one time; so, to insure the vessel's return for those left behind, the mate was detained in New Zealand as a hostage. The *Lord Rodney* landed her first load of immigrants, numbering five hundred persons, on the 17th November, 1835, and in December following the captain completed his enforced contract by putting the remaining four hundred on shore at the same port. These well-armed and powerful intruders seem to have walked boldly ashore, and, unopposed, parted the land among them, and enslaved the Morioris, glad to find that the country was really full of *kai-kai*, or eatables, as they had been told. In 1840 the group was visited by the New Zealand Company's agent, Mr. Hanson, in the *Cuba*, accompanied by Dr. Dieffenbach, the celebrated naturalist, who afterwards wrote a history of New Zealand. This observer records that the Morioris, who a few years before likened themselves to the *koriari* or flax-

stalks in number, or to the young of the wild grey duck on the great lagoon, had at the date of his visit decreased to less than ninety souls by their five years of slavery. "They are the labourers," he says, "and porters of their masters, who have no notion of anything like moderation in the labour they exact; so that ulcerated backs bent almost double, and emaciated paralytic limbs with diseased lungs, are the ordinary lot of these ill-fated wretches." The Kaupepe, as the Morioris called their oppressors, had not only used them as beasts of burden, but as their stalled cattle. The dying remnants of the race still tell of that dreadful time when as many as fifty of their ancestors were roasted in a single oven; and when the ghastly sight of the shore laid out with the dead bodies of their men, women, and children, sometimes for a length of a quarter of a mile, might be witnessed. The few Morioris that still survive may almost be counted on the fingers of the hands. The Maori population is also fast decreasing through disease and drink. Still they own a number of farms, and derive fair profits from the export of wool, and from the curing of young sea-fowl—mutton birds and albatrosses—whose inexhaustible nesting-places on the surrounding rocks they yearly visit for the purpose.

The interest of the island annals culminates in the exciting episode of the escape of the rebel Te Kooti and his fellow-exiles. Sitting within sight of the scene of the occurrence, I recalled the narrative, told me by an actor in the drama, with the keenest interest, and I believe the story will bear repeating to my readers.

At the close of the first Maori war a number of the leaders in the rebellion, among whom Te Kooti was the most important and dangerous, were banished to the Chatham Islands under guard of a small English garrison. Te Kooti, besides being a chief of high rank, was also the recognised head and revered high priest of the Hauhau religion, a fanatical bastardy of Christianity, which had taken and still retains a strong hold on the Maori mind. After a short period of stricter surveillance, these prisoners were, on account of their docile bearing, gradually treated with less and less rigour. Their continued exemplary conduct brought them wider privileges, till they enjoyed the liberty of the whole main island during the day, having only to present themselves within the redoubt at nightfall—their imprisonment being indeed little more than a formality. After a few years of this apparently quietly accepted exile, the Government determined, against better advice, to grant them their full liberty, but without the right to return to New Zealand. Accordingly they were assembled together, and on the decision of the Government being communicated to them that they were once more free men, and that to each of them a grant of land, with implements and seed,

had been made to begin an agricultural life on the island where they must continue to live, the news was received with what looked like the silence of respect. One old chief alone spoke, and in the stately manner, and with the inscrutable countenance, for which the Maoris are distinguished, he replied: "The words of our master are excellent." Not a word or a gesture of dissatisfaction was expressed or evident, and indeed so little was any such feeling among them suspected, that the garrison was withdrawn almost immediately to New Zealand, only a man or two being retained to look after the undismantled redoubt, with, it is difficult to believe, sixty stand of arms and fourteen thousand rounds of ammunition practically unguarded within it. As the troops sailed away out of the bay it was a peaceful picture on which their eyes rested—the deserted redoubt facing them on the top of the cliff over against the anchorage, the Union Jack fluttering at its pole, and the apathetic Hauhaus squatting round it on the ground, watching with unsuspected interest this, to them, momentous departure, while on the beach the usual crowd of Europeans and natives had congregated to speed the parting vessel. "I had been on a visit to New Zealand," to continue in the graphic words of Mr. Chudleigh, "and returned here on board the *Rifleman*, on her voyage subsequent to the removal of the garrison. As we dropped anchor a boat, manned by Hauhaus, was as usual brought alongside, in which was a youth with whom I had long been very friendly. Although he well knew that Waitangi was not the port for my station, he, with an insistance I could not understand, begged permission to land my belongings, which I refused to give, for the vessel, as I pointed out to him, was going round to my own port next day in the ordinary course. 'Better take what you can, sir, there are many dangers in the bay,' he repeated. I again declined, but changing my mind, I sent him for my handbag in which was a considerable sum of money. 'Just say the word, sir, and have the rest with you,' he urged once more, as he handed it over the side. If I could then only have caught his meaning! But I was quite unsuspicious, and my well-wisher, evidently privy to the conspiracy that had been formed, dared not be more explicit.

"Next day, while occupied in the court-house with Captain M—— checking the Government accounts, one of the long-shore loafers staggering in from the public-house called out to us, 'You'd better see what's going on at the redoubt, if you're wise men.' Knowing the fellow we ordered him out at once. 'Very well,' he hiccuped as he took himself off, 'don't you blame me for not telling you.' Something in the man's face struck me, and I sent the interpreter to see if anything was taking place. He presently hastened back to say that the Hauhaus were in possession of the redoubt. We both hurried out just in time to see the English flag coming

down and Te Kooti's being run up the flag-pole under a salute of musketry. Captain M—— rushed to the redoubt in the hope of staying the revolt, but as he approached, he was repulsed by a volley out of which he escaped with only a scratch. I ran to the shore to find the master of the *Rifleman* and order him to slip his cable and keep off and on the coast, for if the vessel were safe the Hauhaus could effect very little. The boatmen, who were Hauhaus, without actually refusing, began excusing themselves from taking him on board. As a matter of fact everything had been well planned and the *Rifleman* was already in possession of the rebels. As I was disputing with them a harmless volley was fired from the redoubt, evidently the signal for action. In a moment more the master of the *Rifleman* and I were on our backs fighting and struggling. Fortunately the Hauhaus were so excited that they scarcely knew what they were really doing. While they thought they were assisting each other, they were in reality struggling more with each other than with us, and the scuffle if it had not been so serious would have been intensely ludicrous. We were trampled on, kicked and rolled over and over till our bodies were black and bruised and covered with dirt. Finding in this scrimmage a bare leg across my mouth, I lost my temper and fastened my teeth well in it. Our contest, however, was too unequal to last long and we were both finally overpowered and with our hands tied to our feet we were laid on the beach. My little ebullition of temper all but cost me my life, for the fellow whose leg I had bitten was not unnaturally very furious, and having possessed himself of a rope, he en-noosed my neck and with his foot against my back did his best to strangle me ; but I fortunately managed to release one hand and thrust it between the rope and my head. My assailant then with his foot on my face attempted to dislodge my arm, but I had got my fingers so well between my teeth that his efforts resulted only in the tearing of their sinews. Finding it impossible to strangle me he next seized the coulter of one of the ploughs lying on the beach and intended for the use of the Hauhaus, and lunged at my head. Luckily the Maoris have a habit of brandishing a weapon before striking, and I was able to dodge several of his blows. While he was swinging it in the air for what I felt must be for me the last time, I saw his hand seized and a revolver presented at his face by one of his own people, who having seen the attack from the redoubt hastened to my rescue ; for it appeared that strict orders had been given by Te Kooti that none of the officials or European residents should be injured in person. My cords were cut and I was carried bleeding to the court-house. A few minutes later a company of the rebels, as well drilled as our own troops, was marched up by Baker, a handsome half-caste, one of Te Kooti's lieutenants, and I was conducted to jail, where I

found many of my fellow-islanders already lodged. This man Baker was the most intelligent and the cruellest of all Te Kooti's officers. He had received an excellent education in one of the mission schools, he could speak and write English with remarkable accuracy, and he was imbued with an implacable hatred of the race to which his father belonged. On coming into my wool-shed one day, some months previously, I found him laughing with the shearers. On inquiring what was amusing them, he replied, with boastful insolence, 'Oh! I was just telling them about the chirping birds I killed in Hawke's Bay during the war. I found in one house two dead women—they had been friendly to the whites—with two gore-covered infants sprawling over them crying to be fed. I took them up and rapped the backs of their heads in, and cast their bodies to their dead mothers.' Just as he finished speaking Captain M—— came in, and I remarked, 'This is the wretch who killed the infants in Hawke's Bay during the war, you remember. He has just been boasting of it.' My friend said nothing, but turned on him a glare of scorn—a look which strange to say was to prove fatal for the half-caste on a future day. On my way to prison I observed a dark object being washed up and down on the beach by the sea and drew the attention of my guard to it. It turned out to be the master of the *Rifleman*, who had been left bound on the shore and forgotten till the rising tide had reached him. He had just saved himself from being carried out to sea by digging his finger-tips into the sand as each wave receded, and when brought to join us in prison he was all but done for. Te Kooti and his friends had expected to find a considerable sum of money in the Government chest, but they were singularly disappointed; but if they carried away little in coin they were, thanks to the carelessness of the Government, well armed and ammunitioned. Their search over, they lost no time in embarking on the *Rifleman*, whose mate and crew were impressed to steer them for a designated port in New Zealand. Before the vessel had got well clear of the coast they encountered a heavy adverse gale. In their jeopardy and terror of failing in their escape, they cast lots who should be sacrificed to the spirits of the ocean. The lot fell on a near relative of Te Kooti, and, as it was not a time to respect persons, the order was given to throw him overboard, and he was accordingly cast into the sea and perished. There is little doubt that the favourable wind which soon after sprang up was credited to the offering they had made. The news of the arrival of the rebels on the coast of the north island of New Zealand soon reached the Government, but the parties of troops sent out against them were unfortunately too small, and a few successful resistances of re-capture by Te Kooti, who had, it is said, really intended to retire quietly to the west coast, encouraged him to break into open

hostilities, in which he was quickly joined by large numbers of his former companions-in-arms. This was the commencement of the second Maori rebellion which cost the Colony £4,000,000 sterling to reduce. Te Kooti and his half-caste lieutenant, Baker, terrorised a great part of the North Island, moving from place to place, committing frightful enormities wherever they appeared, and were pursued by the Queen's troops at a great disadvantage through the forest-clad and river-intersected country. The history of the conflict is well known; but I may follow Baker's fortunes to their close. Having raised a picked company of English-hating Maoris, he attired himself and them in the Queen's uniform, a cunning disguise, in which he succeeded in approaching undiscovered close up to and in decimating more than one party of Government troops. The following is one of his many daring atrocities. Having learned that a party of Maori women, friendly to us, were to rendezvous with food for one of our native companies at a *whare* in the forest, he repaired thither with a couple of companions to receive them, dressed as an English officer. And when these poor women, without a suspicion of the deception, carried their burdens into the *whare*, he closed the door upon them. One woman at a time was passed out to his companions and swiftly murdered with the children that some of them carried. When the ghastly deed was completed, the dead bodies of the women, each with her child and the food she had brought laid on her breast, were piled by the side of the door, on which he inscribed, 'Food for the brave Arawas on their return.' A few days later Captain M—— himself was hailed by Baker under the name of one of the English officers known to be out after the rebels. M——, somewhat suspicious of the spokesman's identity, yet seeing that both officer and men were in the Queen's uniform, and that he had been hailed by name in perfect English, decided to advance to an interview. Before setting out, however, he gave orders that his movements should be closely watched, and if they saw him put his hand on his revolver, or drop suddenly to the ground, they were to fire straight on the party regardless of himself. On approaching within a short distance of each other Captain M—— recognised in a moment the eyes he had so sharply scrutinised in the Wharekauri wool-shed. He gave the agreed-on signal, and at the same instant a volley from his men cut down the most of the rebels. Baker himself was severely wounded, and though he lingered for some days, he succumbed before he could be adjudged the righteous reward of his crimes. Te Kooti, having succeeded in evading in the forest shades and among friendly tribes every attemp to capture him, was eventually pardoned by the Crown at the clos of the war. He still lives execrated throughout the land, and still

prophet and chief, he is to-day, even in his old age, one on whom the Government requires to keep a watchful eye."

The main object of my visit to the Chatham Islands was to search their geologically recent sand-hills in quest of remains of ancient bird forms of which unsuspected evidence had come to my knowledge, and to explore the old Moriori kitchen-middens in the hope of ascertaining whether the extinct Moa, or any of the other characteristic birds of the mainland, had ever lived in this neighbouring archipelago. This unsuspected evidence was a portion of a skull of a bird brought thence amid a collection of beach *débris* to me in New Zealand a few days previous to my sailing by a visitor from Wharekauri—indeed, the obtaining of this bone was the means of hurrying me off. I was fortunate in engaging its collector, Mr. W. Hawkins (who was returning on board the *Kahu*), as guide and companion during my visit. A good observer, and an excellent horseman and campaigner, familiar with every foot of the islands, he proved a most valuable assistant.

My first excursion was made to the sand-hills in Petre Bay. It was a beautiful morning after a night of rain when Mr. Hawkins and I set out on horseback. Our road for some miles passed along an avenue in the woods which lay some distance inland from the shore, bordered with elegant-leaved *matipos* (*Myrsine chathamica*), dark-foliaged *karaka* trees (*Corynocarpus lævigata*), loaded with handsome clusters of large olive-like berries, and *korimikos* with their purple bottle-brush flowers, a bushy species of veronica—a group of plants which here attain to great size and are peculiarly characteristic of the New Zealand region—the stately representatives of the lowly blue speedwell of our own hedgerows; while the thousand-shaded crannies of the limestone crags that cropped out among the trees were busked with masses of the freshest fern fronds. We rode rapidly in harmony with the crisp, clear morning, and my eager hopes were heightened by the exhilaration caused by our surroundings; for the undulations of the road or the numerous breaches in the sand-hills between us and the shore constantly gave and took from us charming pictures framed in foliage of the expansive bay on our left, whose waters, overarched by the cloudless azure, were of a deep blue very characteristic of the Chatham Island seas, and had just motion enough from the softest of zephyrs to play with the sunbeams, and ruffle into sparkling foam as they rolled gently up in semicircles on the yellow beach, or rose and fell against the deep rust-coloured walls of the high bluff that, some four miles from the anchorage, breaks the long curve of the Waitangi beach. Beyond this striking buttress the shore continues in an unbroken sweep for eight miles, over which we had many a splendid gallop. From the water's edge the shore rises rather rapidly into sand-hills sixty to seventy feet in height, shelving down

gently landwards. They are much breached by the wind, and here and there are topped with a stunted scrub which is rapidly disappearing. Along these eight miles of shore and cliff lay the hunting-grounds I had come specially to search in the hope of obtaining confirmation of my belief, based on the fragmentary cranium picked up by my guide, that here at one time, though now extinct, there lived a species of bird, which, if this outlying island should prove to have been its home, would be of much importance in helping to solve the many difficult problems in the geographical distribution of life which this singular region presents to the student. Having dismounted and tied our horses to a branch beneath the shade of a tree, we descended to the shore and began our eager hunt along the slope between the water's edge and the top of the sand-hills, over which were strewn sea-bird bones, the skeletons of, at a very moderate computation, hundreds of thousands of albatross, penguin, petrel, cormorant, and all kinds of water-fowl, none of them distinguishable from species now living. We wandered up and down for a long time without finding any of the bones of which I was in quest. At length, however, I was arrested, on the higher part of the slope towards the base of the sand-hills, by observing at my foot, surrounded by some of the principal bones of the skeleton, the protruding point of a skull, unmistakably of the same species of bird to which the fragment I had examined in New Zealand belonged. The bones were lying *in situ*, embedded in a hard pink sand out of which it required some care to extract them without fracture. When disinterred they proved to be almost as perfect as if macerated in a laboratory. Among them were the missing portions necessary to identify the bird with certainty, and these placed beyond all doubt the correctness of my assumption that the bird which in remote times had lived here was a rail of large size, all but identical with a species of wood-hen named *Aphanapteryx*, hitherto known only from the far-distant Mascarene Islands, by portions of its beak and limbs.

It may be remembered that on the 13th of August, 1868, the shores of Peru, Ecuador, and Bolivia were visited by a disastrous earthquake, by which scores of cities were overthrown and thousands of lives destroyed. So violent was the quivering of the earth that great crags were toppled from the pinnacles of the Andes, and the ocean heaved into waves of such height that their undulations swept across the whole of the Pacific Ocean. Forty-eight hours after leaving the American coast these huge rollers reached the longitude of the Chatham Islands, and broke with disastrous force on the shores of Petre Bay. These waves, of which there were at least three of greater magnitude than the others, swept in on the Waitangi beach, washing many yards of the sand cliffs away, breaking through the compact belt of *karaka* and *ake-ake* trees that clothed

them, and had for generations protected them against the inroads of the sea and the force of the wind. The latter of these agencies has during the last twenty-five years continued ceaselessly to widen the breaches then made in the hills, and has already broken down and carried away into the country beyond stratum after stratum, in some places down to the limestone rocks underlying the sand. The hills in a few places, however, still present an unbroken face, where the succession of the strata can be seen as they existed before the tidal waves disturbed the scene. The belt of wood on the crest of the sand-hills, formerly unbroken along the whole length of the shore, stands on a band of dark vegetable soil, whose depth indicates that a long period of time has been necessary for its accumulation. Beneath this bed lies a second of more or less friable sea-sand, several feet in depth, either an old elevated sea-beach or a drift from a more seaward shore. Supporting this stratum is a third, in some places thirty to forty feet thick, of hard pink-coloured sand (not sufficiently consolidated, perhaps, to be designated sandstone), and it is in this bed alone that the bones of the extinct birds, now being uncovered by the wind, seem to be entombed. Our search was rewarded by finding the remains not only of the aphanapteryx, but those also of a tall coot and a large and peculiar raven-like crow (*Palæocorax moriorum*), equally unknown to have existed in any part of the New Zealand region. On the shore—but not embedded, so far as I could ascertain, in the hard pink sand, because they have probably died out more recently—I found bones of several other birds: of the mountain parrot (*Nestor notabilis*), the lesser owl (*Spiloglaux Novæ-Zealandiæ*), the small hawk (*Harpa ferox*), and of the *weka* or wood-hen (*Ocydromus australis*), which are now living in and characteristic of New Zealand, but long extinct in the Chatham Islands. They lay in association with remains of Dieffenbach's wood-hen (*Cabalus dieffenbachii*), a bird so rare that since 1840 only three specimens have been obtained (of which two are in the British Museum and one is lost). This bird, now quite extinct in the larger island of the group, is confined to a rocky islet a little distance off the coast. The genus is unknown even in New Zealand, and occurs nowhere else till Lord Howe's Island, lying to the north-west between that colony and Australia, is reached, where another solitary species lives. Both here and afterwards on the eastern coast I found bones of that singular lizard the *Sphenodon punctatum*, or *tuatara* of the Maoris; the unique species of a peculiar order of ancient pedigree, now on the very verge of extinction and confined to a single small island off the northern coast of New Zealand. As we advanced along the beach a low mound surmounted by a heap of dark stones attracted our steps. It turned out to be the remains of an old Moriori oven. The stones, evidently brought from some distance, as there were no basaltic rocks

near, were all fire-marked, and unmistakably those over which food had, in the usual Polynesian manner, been cooked; all about the spot were indications that a great feast had taken place, for the bones of seals, whales, fishes, ducks, swan, parrots, pigeons, hawks, and swamp-hens had contributed to it, as well as more than one *aphanapteryx*. Though this oven had been dug in the pink sand-bed, it is highly improbable that it was an uncovered interstratification; but rather that it had been long ago in an already denudated surface of that bed, which has been covered and uncovered perhaps many times by sand drifted from the shore. It undoubtedly proves, however, that these now vanished birds were contemporary with a people on these islands, who employed the Polynesian method of cooking, and used, as blubber knives, flint flakes (a few of which were found by us in association with the remains of their feast) identical in form with those the Morioris till recently used.

My further purpose in visiting the Chatham Islands was, as I have said above, to discover, if I might be so fortunate, whether those characteristic birds of New Zealand, the *moa* (*Dinornis*), the *kiwi* (*Apteryx*), and the wood-hen (*Ocydromus*) had ever lived there. This last I had already been successful in discovering. I knew from various sources that the Morioris had a tradition of a great bird they called the *poüwa*. Mr. Shand also had, with much kindness and trouble, recounted to me all that they themselves knew, and described to me the exact localities where they say their forefathers trapped and killed those wonderful birds. To these places, therefore, excursions were next undertaken in great hope and expectancy of success.

One of the most striking features of Wharekauri (the largest island of the group, as will be remembered) is the number of tarns and lakes it possesses. The most extensive of these, named Te Whanga, occupies the greater part of the low central region of the island, and on its eastern side is separated from the sea only by a very narrow bar of sand, which every few years, when the lagoon becomes surcharged by the rivers which feed it, is carried away, and the water rushes out till the lagoon attains a certain level, when the sea again silts up the opening. The western side of this lake is bounded by cliffs of limestone of Palæozoic age, on which lies a bed, in some places fifty to sixty feet deep, of friable polyzoa, containing sharks' teeth and echinoderm spines of species belonging to the transition period between the secondary and tertiary epochs (the cretaceo-tertiary of the New Zealand Geological Survey Reports). Along the margin of this lagoon, and at a short distance from the shore, so their traditions run, the Morioris dug deep holes, into which the *poüwa* was driven, and, when inextricably bogged, it was clubbed to death, and then dragged ashore to the cooking-pits. At every one of the indicated

places we succeeded in finding old ovens, the sites of camps, or the remains of feasts, which were, as usual, birds, molluscs, and fishes. At one spot at least we found grim proofs that the feasters did not always confine themselves to the aforementioned diet, for I gathered several human limb-bones, and a couple of grinning crania, with in each an ominously suggestive hole in that region of the skull where an additional eye would have proved of such inestimable value to a race so cruel and treacherous to each other as our own. To my great disappointment, our extended excavations rewarded me with no bone or fragment of a bone of the *poüwa* or of the *apteryx*. Yet from the circumstantiality of the account of the *poüwa* in their traditions, and of the narrative I listened to a little later from Tapu, one of the oldest surviving chief men of the Morioris (whom I found living in a poor house-cluster at the south-east corner of the island), I cannot resist the conviction that the *poüwa*—which, if it was anything, must have been a species of *moa*—did actually live on these islands. Tapu was an intelligent old fellow, with a very Jewish countenance, and highly developed frontal processes. "The *poüwa*," he said, "he a big bird; he die—oo! two hundred, three hundred year"—(this estimate of time is an acquired European phrase)—"long time ago. I see his bone stick up in Te Whanga, where Morioris camp long time back. Me young fellow father of me tell me Moriori make him hole in water, drive him *poüwa* in, hammer him dead and roast him. His bone I see him stick in hole in mud in lagoon water. Oo! big, all same as cow; he eat plenty grass swim [floating on] lagoon water, Moriori call *koko*." It is, of course, impossible to describe in words Tapu's gestures and expressions; but no one who heard him could doubt that he had seen large bones in the lagoon, and that their origin had been explained to him by his father.

In the kitchen-midden that produced the human remains there were thousands of swan bones of the same species as that I had gathered by the side of the oven on the Waitangi beach. This lake was, therefore, probably their chief home, whither they must have resorted in enormous numbers, for in some localities they appear to have been almost the sole food of the people. That the swan, now indigenous only to West Australia, South America, and the north of the northern hemisphere, had in past times been also a native of New Zealand was unknown till the previous year, when it was discovered during my excavation of a cave near Christchurch, which, by the landslip of a huge portion of the hill at whose base it was situated, had been closed from time immemorial, and has from this circumstance afforded irrefragable evidence of the contemporaneity of the *moa* with the Maori, in contradistinction to another race supposed to precede them. The Maori fisher-folk (as the implements

found prove them to have been) who occupied the cave (from which, perhaps, they escaped only just in time to save themselves from being entombed) fed on the swan and on the *moa*, and cast their bones side by side into the refuse-heap in front of their door to await the future. Neither in New Zealand nor in the Chatham Islands is the swan now indigenous, and, if we may judge from the fact of its being totally unknown to the Maoris, a people who have handed down in their traditions a minute account of everything that they used as food, and are entirely silent about the swan, its disappearance from both lands must go back to a very distant date. Within recent years the Australian black swan (*Chenopis atrata*) has been introduced into New Zealand, and has already multiplied with extraordinary rapidity, showing that the climate and food-supply of its adopted country are eminently suited to it. The cause of the total extinction, therefore, of the ancient swan (and other birds also) in its natural home appears at present inexplicable.

Disappointed in our delvings in the middens of the lowlands, there still remained for investigation untouched heaps at the base of the high cliffs of the southern coast, and thither we next directed our steps. The hill districts of the southern regions are uninhabited and quite houseless except for a small shepherd's hut on Mr. Hood's property, at the highest part of the island, and this he very kindly placed at our service. With an extra horse added to our cavalcade carrying provisions for four or five days, we started under a threatening sky, and, travelling southward, climbed slowly up for the greater part of a day through country of a very remarkable character. Without a guide well acquainted with the district it would be impossible for a stranger to travel across it with safety. The whole surface of the island, though not so much on the lower parts, is one vast peat moss many feet in depth. There are no discernible paths, and apparently no obstacles to one's riding anywhere in a straight line; yet in following my guide I found we veered to all points of the compass and were constantly wandering widely from the direction of our destination to escape being bogged. There appeared to my inexperienced eye nothing to indicate the harder ground safe to travel over from treacherous bogs on both hands, over which neither horse nor pedestrian could safely pass. Horses born on the island, however, exhibit a wonderful sagacity in regard to surfaces which will not carry them, and many of them can be trusted to discriminate where it is unsafe to tread when the rider is unable to tell. The surface of the wetter bogs in the many extensive depressions of the ground presented wonderfully rich sheets of colour from their carpet of moss, of bright green, yellow, and pink, and their endless intermediate shades, quite making up for the absence of flowering plants, of which the sterile moorland produces

amid its stunted bracken few species except a sweet pure white gentian (*Gentiana saxosa*), a lowly violet with scarlet berries, and a purple sundew. Higher up, however, the slopes became more shrub-clad and we passed through fields of *kikitere*, a tall shrubby member of the *Compositæ*, covered with large purple and white aster-like flowers, and through brakes of broad-leaved dracophyllums and brightly berried leucopogons, the austral representatives of our heaths, amid which the splendid arborescent ragwort (*Senecio hunti*) of the Chatham Islands displayed its golden domes—gorgeous even beneath a gloomy sky. As we reached our destined shelter on the Awatapu cliffs a mizzling mist came down with its chilling dampness, and what with the sombre green of the dripping lichen and moss-hung trees standing ghostly around, the solitude and silence of the region, broken now and then only by the harsh screech of a mutton bird, and the deepening dusk, the landscape, which all the way had worn a cold and uninviting countenance, now grew as dismal and repellent as can be conceived. So that when the time came we were not sorry to stretch ourselves on the floor within our blankets before the "roaring" fire we had taken good care to make, and abandon ourselves to the sleep of the tired and dejected. When we awoke in the morning we unbarred the door to a fresh-born scene—the Awatapu of yesterday had undergone transfiguration. The dull leaden sky had vanished, the last scrolls of mist were dissolving into space, the grey-beard lichens were dotted with glistening beads, the *ake-ake* trees, whose foliage yesterday stood reversed to the north-west wind in a cold and shivering attitude, were this morning fluttering their silver under-sided leaves to the sou'-wester beneath a bright sun and a blue sky, so that the woods where they were abundant looked starred with flowers. Instead of silence the noisy home sparrows who had already discovered this distant habitation, and had, of course, packed every cranny with their nests, were lustily chirruping; the adjacent shrubberies were full of the exquisite notes of the bell-bird (*Authornis melanocephala*), the sweetest-throated of all the Antipodean songsters, the booming of pigeons and the warble of the white-cravated *tui*. As for solitude the fantails (*Rhipidura*), those most trustful and winning of all the feathered tribes, I care not in what land, came fearlessly circling round our heads, and perching within touch, played hide-and-seek from behind their fan-like tails which they spread and close untiringly, uttering the while their low cheery chirp; they even followed us along the forest paths, flitting by our side from tree to tree, as if offering their own bright companionship and happy in ours.

The kitchen-middens of our quest were situated on the shore beneath the cliffs some distance along the coast, and were accessible only by a more or less steep descent, where a river had somewhat sloped down the almost sheer basaltic precipices. On these high

sea-walls, free from marauding sheep and pigs, grows the richest vegetation on the island; they present an unbroken sheet of verdure from their summits down to the verge of the water. From the front of the cliff there projected in one place a narrow seaward buttress, a splendid coign of vantage clear of the line of the land, to be reached, however, only by wary steps and careful grasping of the trees, whither I could not resist the temptation to scramble to view a scene from which nothing that could increase the qualification of the eye or the mind seemed absent—the chief of many pictures of unwonted beauty which from time to time I caught in the island in hurrying from hunting-ground to hunting-ground, but which, though ever bright and vivid to myself, I can scarcely hope to describe in words which will not appear extravagant and superlative to the calm reader, even if I indicate merely its outlines:—The sun in a cloudless sky lighting up a deep sapphire sea, from which rises in massive stateliness a solid wall of foliage of the darkest green, lit here and there by a clump of the golden ragwort or a patch of purple veronica; the blue waves circling round the off-lying rocks in snowy rings and rolling on in "endless tides" to break in rainbow-tinted spray against the black, unverdured line of rocks that belt the shore seven hundred feet below the eye; to southward, across a rippling strait, rise phantastic islets of bare columnar rocks, and still beyond stand out the rugged crags and flat-topped heights of Mangare and Rangiauria, dimly limned through a mellowing haze against the sky; low down by the water's level sail sooty petrels and black-billed gulls, or red-beaked terns speed past the face on flashing wings; high overhead the magnificent native pigeon, toying with the strong up-draught of the breeze against the cliffs, wheels in the blue. These are the mere elements of the fair scene which the reader must imagine for himself. Scrambling down the river-excavated gap we eventually reached the shore, and discovered with little trouble the old cooking-places of the Morioris by the great heaps of *pawa* (*Haliotis*) shells they had left. Long and arduous was our search, but no *poüwa* or *aphanapteryx*, *kiwi* or swan bones—and indeed little of importance—rewarded our exertions. It was evident that none of these birds had lived in this region. Grey ducks, which probably then as now crowded the neighbouring tarns, fish, molluscs, and *echini* (or sea-eggs), formed the only food apparently of the frequenters of this rugged rocky beach. I was once more sorely disappointed. It was some compensation, however, to have seen growing here in its own home that noble plant, the sole species of a genus confined to this island, which goes by the very inappropriate name of the Chatham Island lily. The sheep are very fond of its leaves and the pigs of its roots, so that in all places which these animals can reach it has disappeared. It loves the roughest-bouldered beaches and thrives best when it has to push its head up through feet of rotting seaweed

within the wash of the tide. It is well named noble, for its straight stem, four to five feet in height, after giving off magnificent broad, deep green, rhubarb-like leaves, expands in many heads of the darkest blue flowers, so unmistakably recalling the forget-me-not that it has received the scientific name of *Myosotidium nobile*.

From Awatapu we descended to Owenga, on the shores of Hanson Bay, in the hope that there I might be able to add to my collections. I obtained, however, only a few bones of the *tuatara*, and of some of the same extinct birds as I had gathered on the Waitangi beach, showing that these species were probably distributed over the whole of the island. From Owenga I had hoped to reach Rangiauria, the next larger member of the archipelago, but unforeseen circumstances unfortunately interfered, and my investigations in this interesting island consequently terminated here.

If, however, I have been unsuccessful in obtaining evidences of the former existence in these islands of the *moa*—except the circumstantial statement of Tapu and the Moriori legends—or of the *kiwi*, I had at least been able, by the discovery of the remains of such characteristic forms of New Zealand life as the *tuatara* and the *weka*, the mountain parrot (*Nestor notabilis*), and the owl, which could not have crossed five hundred miles of sea without other aid than their limbs afford, to confirm more strongly the botanical evidence that in ancient days New Zealand and the Chatham Islands must have been united by continuous land. Such facts as the presence of the same species of wood-hen in the far-south Macquarrie Islands as in New Zealand, and the occurrence of a species closely related to Dieffenbach's rail of the Chatham Islands in Lord Howe's Island (which lies between New Zealand and Australia), with much such like zoological and botanical evidence, which space will not permit me to detail, go to prove that New Zealand is but a big fragment of a large vanished continent, which not only included the Macquarrie, the Antipodes and other neighbouring Antarctic islands, but, as Mr. Wallace in his *Island Life* has suggested, stretched northward by Lord Howe's Island perhaps to join with the northern end of Eastern Australia, in those days a long, narrow continent, of which Tasmania was part, but with much probability not its southernmost termination.

Readers of that curious old book, *The Voyage of François Leguat of Bresse to Roderiguez, Mauritius, Java, and the Cape of Good Hope* (recently republished by the Hakluyt Society), will remember that during his sad durance in the Mascarene Islands in 1691, that "philosophic Huguenot," in recording with much circumstance all that he suffered and all that he saw, gives us a minute account of their fauna, and among other birds he describes the wood-hens (*Gelinotes*) as being—

"Fat all the year round and of a most delicat tast. Their colour is always of a

bright gray, and there's very little difference in the Plumage between the two sexes. They hide their nests so well that we couldn't find 'em out, and consequently did not tast their Eggs. They have a red List (border) about their Eyes, their Beaks are straight and pointed, near two inches long and red also. They cannot fly, their fat makes 'em too heavy for it. If you offer them anything that's red, they are so angry that they will fly at you to catch it out of your Hand, and in the heat of the combat we had an opportunity to take them with ease."

The bird to which Leguat refers is undoubtedly identical with one described in a State paper found in the Ministry of Marine, at Paris, entitled *Relation de l'Ile Roderigue*, written about 1730. In this paper it is described as a bird—

"Of the size of a young hen, which has the feet and beak red. Its foot is a little like that of a curlew, excepting that it is slightly thicker and not quite so long. Its plumage is spotted with white and gray. They generally feed on the eggs of the land tortoises which they find in the ground. . . . They have small pinions without feathers, on which account they cannot fly; but on the other hand they run very well."

The remains of a bird discovered by Messrs. Strickland and Melville in 1848 in the cave earths of Roderiquez (material which was largely augmented some years later by the collections of Sir Edward Newton), were conclusively proved, on examination by Professor Milne-Edwards, to belong to a species of the *Rallidæ* or water-hen family of birds, resembling the wingless rail (the *weka* or wood-hen) of New Zealand, and like that bird incapable of flight. "At the present day there does not exist in Roderiquez any bird having the least resemblance to the *ocydromi* (or wood-hens), or the other species of the same family; but all the osteological characters agree very well with the idea that can be formed of certain birds which inhabited this island in great numbers two centuries ago, and which Leguat noticed under the name of *gelinotes*." They also resembled the *wekas* of New Zealand by a "physiological peculiarity." "If you offer them anything that's red they are so angry that they will fly at you." The *wekas* of New Zealand are remarkable for their fearless inquisitiveness, through which they can be caught with surprising ease by a red rag dangled at the end of a stick. From this peculiarity of the *gelinotes* Milne-Edwards designated the new genus he formed for their reception *Erythromachus* (hostile to red), and named the species *Erythromachus Leguati*, in honour of the Huguenot, whose narrative was held in much discredit till the irrefragable evidence, disinterred after two hundred years, established the trustworthiness of his observations and the accuracy of his descriptions, and secured his name an honoured place among reliable historians. The bones of this large wood-hen were found so associated with those of the great extinct flightless pigeon of the same island, known as the solitaire (*Pezophaps solitaria*), as to prove the contemporaneity of the two birds. The solitaire's nearest relative is the famous dodo (*Didas ineptus*), also a huge flightless ground

pigeon, which lived in the island of Mauritius ninety-five miles distant. In the account of his stay in Mauritius Leguat records seeing *gelinotes*, or wood-hens, resembling those he had seen in Roderiquez. In 1865 Sir Edward sent from Mauritius to his brother, Professor Newton, in Cambridge, among a quantity of dodo bones exhumed from the *Mare aux Songes*, close by Maheburg, a few limb bones and a highly arched lower jaw of a bird which was then, and continued to be, unknown till the year 1868, when Herr von Frauenfeld discovered in the parchment collection in the private library of the Emperor of Austria a painting of the dodo, and by its side a tall bird, remarkable for its long-pointed and arched beak, whose plumage was of a uniform reddish colour, similar in character to that of the flightless birds, such as the *kiwi* and *weka* of New Zealand, and like them, with very rudimentary wings and short legs. He at once recognised the Emperor's painting to be a representation of the bird whose bones had been discovered in Mauritius in association with those of the dodo, and without doubt identical with that referred to by Leguat as the *gelinote* he had seen there. On this bird Frauenfeld bestowed the name of *Aphanapteryx*, the very same genus to which belong the bones which I dug out of the pink sands of the Chatham Islands. The *gelinote* of Mauritius is hardly distinguishable, except in size, from the *aphanapteryx* of the Chatham Islands, lands separated by more than one hundred and twenty degrees of longitude. Indeed the latter is more nearly related to the Mauritian *gelinote* than that is to the *gelinote* (or *Erythromachus*) of Roderiquez, a neighbouring island of its own group, not two degrees away. They were all of them heavy birds, devoid of functional wings and perfectly incapable of swimming half round the world, yet Mauritius and the Chatham Islands are the only two spots on the globe in which the *aphanapteryx* is known to have lived, and at present there is no evidence that the Wharekauri species inhabited New Zealand. Along with the great pigeons and the *aphanapteryx* there lived in Mauritius, so Leguat tells us, "water-hens, which are as large as fowls; they are black and have a large white crest on the head." And among the *aphanapteryx* remains brought thence there occurred other bones which Milne-Edwards has determined to belong to a tall species of coot, which he has named *Fulica newtoni*, doubtless the water-hen referred to by Leguat. Strangely enough, I gathered also on the Waitangi sands, as I have narrated above, the bones of a tall coot in association with the Wharekauri *aphanapteryx*, so closely related to Newton's coot, as to be scarcely possible of differentiation from it, except perhaps by its somewhat larger size. After a careful study of all the remains from the different Mascarene Islands as well as all that has been written on the subject, Professor Newton and his brother find the deduction "that the solitaire of Roderiquez and the

dodo of Mauritius, much as they eventually came to differ, sprang from one and the same stock, so obvious that they can no more conceive any one fully acquainted with the facts of the case hesitating about its adoption"; and "there was once a time," they are compelled to believe, "when Roderiquez, Mauritius, Bourbon, Madagascar, and the Seychelles were connected by dry land," of which they are now the surviving portions, just as New Zealand and the islands around it are but the unsunk fragments of a greater land, as I have shown on a previous page. And now, continuing the train of reasoning adopted by so excellent an authority as Professor Newton, there can be but one deduction from the occurrence in past times, both in Mauritius and in the Chatham Islands, of a heavy flightless bird so nearly related to each other as the *gelinotes* of these distant regions prove to be. There must have been a continuous land surface between the larger areas which have been shown above to have with much probability existed in ancient times in the Indian ocean and in the Western Pacific. Not only were the *aphanapteryx* and the coot common to the two lands, but there existed also in both, though now extinct, gigantic representatives of the ostrich tribe—the dinornis or *moa* of New Zealand and the *æpyornis* of Madagascar—birds without doubt sprung from a common stock. So also we might, if space permitted, show that in South Africa, in the southern lands of South America, in temperate Australia and Tasmania, as well as in the Antarctic islands, there live or have lived forms of animal and vegetable life, very close of kin to each other, common to two or to more of these widely parted regions, yet without any kin so near on the northern side of the equator. It is impossible to doubt, therefore, that in southern latitudes there must have existed a land on which the common ancestors of all these forms lived, and whence they could disperse in all directions. This lost continent, I am constrained to believe from evidence which space does not on the present occasion permit me to adduce, lies in part beneath the southern ice-cap, and it approached to or included the Antarctic islands, as well as extended northward to unite with the southern extremities of South America, perhaps with Africa, and with the Mascarene, the Australian and New Zealand continental islands. The comparatively shallow depth of the circumpolar seas strongly supports the probability of this supposition. In the days, however, when the ancestors of the plants and animals now living or whose fossils prove their former existence in these far-separated countries, had their common home in this Antarctic continent, it was a land, not buried under ice, but smiling under a bright and genial climate and clothed with a vegetation sufficient for the sustenance of a large and diverse fauna. We know that such climatic conditions must have existed in the Antarctic

area, during the height of the glacial age in the Northern hemisphere. The inhabitants of this genial land lived, multiplied, spread abroad, and, through lapse of ages modified by their surroundings and the latitude of their homes, graduated into many diverse species, till the creeping on of the glacial age in the Southern hemisphere compelled them gradually to migrate further and further northward. In this as in all migrations, there perished doubtless many strange forms of that land which we shall probably never know; the members of some of its groups, such as the genus *aphanapteryx*, would seem to have split into parties, which, travelling by divergent roads, finally arrived in regions so far apart as Mauritius and the Chatham Islands, unaffected by the varying climates and surroundings they experienced, being of an ancient dominating type; others, again, travelling together by single route, or dying out on other roads, are therefore found only on one of the northern continents. It is unlikely that the north peninsulas of the Antarctic land were ever contemporaneously united with all the northern continents, as the singularly uneven distribution among them of their fauna and flora indicates. The union was probably now with one region, now with another, and indeed it is possible that the Antarctic extensions may have never joined directly with any part of the great continents as we now actually know them. To trace, however, even roughly, the direct roads, or to locate the drawbridges, and the leaping-stones, which the many elevations and subsidences of this volcanic region have made and broken for these passing migrants, or to reckon the mutations and combinations of their opening and closing, or to follow the flow and flux, the expediting, the retarding or the perishing of the northward-bound pilgrims, are problems too complex to attempt now. Nevertheless the existence of an austral continent extending into far southern latitudes, however unable we may be to fix its boundaries, is undoubtedly necessary to explain the distribution of life in the southern hemisphere, and account for no more singular instance of disconnected distribution than the occurrence of the *aphanapteryx* both in Mauritius and in the Chatham Islands.

If I have been able to convey to the reader of this account of my visit to Wharekauri but a fraction of the interest, the charm, and the excitement of keen expectancy which every yard traversed, every sand-hill and refuse-heap explored, aroused when any moment might disclose still more remarkable forms of life than any already gathered, with all the light their discovery might shed on the past; or some impression of the delight that the scenery on every hand afforded me, neither the reader nor the writer of this paper will have cause to be dissatisfied.

HENRY O. FORBES.

ON THE RISE AND DEVELOPMENT OF SYNTHETICAL CHEMISTRY.

CHEMISTRY, as an art, dates back from the very dawn of civilization itself; as a science it is barely a couple of centuries old. To the alchemists its pursuit was, in the main, but the pursuit of wealth. Now and again we find men among them like Thomas Aquinas, Basil Valentine, Libavius, and Glauber, who were impelled by a higher motive than the love of gold to seek for the hidden meaning of things, but the mystical tendencies of the Middle Ages were as scales to their eyes, and such devious groping for the light as they were able to make too frequently ended in utter darkness. Even in the therapeutic crudities of Paracelsus, who was sufficiently sincere in his profession as a thaumaturgist to affirm that magic was the culminating point of all human knowledge, what there was of science was summed up in the aphorism, which in fact passed as an axiom among his disciples: *Man is a chemical compound; his ailments are due to some alteration in his composition, and can only be cured by the influence of other chemical compounds.* It may be questioned indeed whether modern therapeutics has advanced much beyond this position.

In strict truth, it is only within the present century that men have seriously set themselves to search for the causes and conditions of chemical change. Phlogistonism, it is true, had in it the semblance of a philosophical doctrine, but it was founded on an utterly false basis, and ultimately fell and was crushed by the weight of its own absurdities. The recognition of the real nature of combustion, itself a manifestation of chemical union, paved the way towards a clearer conception of the essential nature of chemical combination; and this conception acquired a beauty, order, and harmony until then unknown to chemical teaching by the application of the atomic hypothesis as an explanation of the fundamental facts of chemical affinity. Indeed, it has become a truism to say that this conception, the fruit of patient and sustained induction, is to chemistry what the theory of universal gravitation is to astronomy. For the first time in its history chemistry was illumined and vivified by a single, consistent theory, founded on quantitative relations, and making use of definite mathematical expression; and it was at length recognised that the science must ultimately be referred to mathematical laws similar to those which had been established in regard to the mechanical properties of matter.

It in nowise detracts from the merit of Dalton to affirm that the atomic theory was a product of the age. It is certain that even if

the simple, unassuming Cumberland Quaker had never lived, or that, if the boarding-school at Kendal, "where youth was carefully instructed in English, Latin, Greek, and French; also writing, arithmetic, merchants' accounts, and the mathematics," for the modest sum of ten-and-sixpence per quarter, had absorbed the whole of his intellectual energies, we should still have had the atomic theory. Thomas Thomson, who stood sponsor to the infant doctrine, always maintained that in the absence of Dalton, Wollaston would have been its discoverer. A younger, bolder, and more vigorous intellect than Wollaston's was also on its track, and Sweden had well-nigh secured the glory which indisputably belongs to Britain. Jöns Jakob Berzelius had clearly grasped the real significance of Richter's labours, and, before he had even heard of Dalton's theory, had dedicated his life to the determination of the stoïchiometric relations on which the atomic doctrine ultimately depends. His keen mental vision saw proofs of its validity where Dalton failed to find them. He was aware also of its limitations; like Wollaston, he perceived that the mutual action of atoms requires a geometrical conception of their relative arrangement in all the three dimensions of solid extension.

Whatever may be the ultimate fate of the theory which found deliberate expression in the *New System of Chemical Philosophy*—and no one can say that it is not destined to give place to a higher and even nobler generalisation, which shall more clearly connect matter with the forces associated with it—it is certain that the ages to come will ever reckon it as the central, dominant conception which has actuated the chemistry of the nineteenth century. The characteristic feature of the chemistry of our time is, in a word, the development and elaboration of Dalton's doctrine; for every great advance in chemical knowledge during the last ninety years finds its interpretation in his theory.

The discovery by Gay-Lussac in 1808, that the weights of equal volumes of both simple and compound gases, when measured under like conditions of temperature and pressure, are either proportional to or are simple multiples of their empirical combining weights; and the explanation of this fact, given by Avogadro in 1811, by the assumption that all gases, when measured under comparable conditions, contain the same number of particles, as indicated by the similarity in behaviour of all truly gaseous substances under the influence of temperature and pressure, were the first striking proofs of the validity, if not the sufficiency, of Dalton's fundamental conception. Then followed the discovery of Dulong and Petit, in 1819, that the capacity for heat of the elements is inversely proportional to their atomic weights, which finds its simplest expression in the general law that the atoms of elementary

substances have the same capacity for heat; and almost simultaneously, the discovery by Mitscherlich that an equal number of atoms similarly combined produces similarity of crystalline form; similarity of crystalline form being independent of the chemical nature of the atoms, and only determined by their number and arrangement. The recognition, about 1823, of the existence of Isomerism, that is, of the fact that the same elements may combine together in the same proportion and yet give rise to totally distinct compounds; Faraday's discovery in 1833, "that the equivalent weights of bodies are simply those quantities of them which contain equal quantities of electricity," or, in other words, that the atoms of bodies have equal quantities of electricity naturally associated with them; the detection by Kopp and Schröder in Germany, and by Playfair and Joule in this conntry, of the relations between mass and volume in solids and liquids; these constitute so many proofs of the soundness and comprehensiveness of the hypothesis. It does not weaken the argument that these generalisations were not invariably accepted by the leaders of chemical opinion at the time they were promulgated. Dalton himself, for example, was unable to recognise the great support his doctrine derived from the discovery of the law of volumes by Gay-Lussac. Berzelius long failed to appreciate the significance of the discovery of Dulong and Petit, and although he was eventually driven to recognise the occurrence of isomerism—he, indeed, coined that very word—in the outset he stoutly maintained that the idea involved a contradiction in terms. It is true that a fuller knowledge has shown that each of these generalisations has its limitations: that all are, so to say, only first approximations to exact mathematical statement; but this circumstance has in no wise diminished the support they afford to the doctrine of Dalton, for, as Liebig has well stated, "one of the most cogent arguments for the soundness of our views respecting the existence of atoms is, that these deviations are explicable upon certain considerations attaching to the atomic theory."

Corpuscular theories are now altogether banished from certain domains of physics. Indeed, the most weighty of the attacks yet made on the atomic hypothesis have been delivered by those who are mainly occupied with the problems and abstract conceptions of energy. It is significant that Faraday, who began his scientific career as a chemist, seems to have gradually loosened his hold on the atomic theory as he became more and more absorbed in the contemplation of purely physical phenomena. On the other hand, the belief in the existence of atoms has been enormously strengthened by a profounder study of the laws which affect the thermal relations of gases and their behaviour under pressure: the very fact that these laws are not capable of the strict mathematical

expression originally given to them, finds its fullest explanation in the atomic theory; the deviations follow, indeed, as a necessary consequence of the theory, thereby affording an additional proof of the truth of Liebig's remark.

But the chemist who concerns himself mainly with considerations drawn from his own science sees in the past course and present tendency of organic chemistry the strongest proofs of the influence and value of Dalton's doctrine. All the fundamental conceptions of organic chemistry are essentially atomic. The significance of isomerism has already been referred to; it is in the domain of organic chemistry that isomerism finds its most numerous and most striking examples. As far back as 1823 Gay-Lussac and Liebig clearly recognised the existence of isomerism, and also the fact that it must ultimately depend on differences in the mode in which the atoms of the constituent elements are combined. The discovery of the identity in qualitative and quantitative composition of silver fulminate and silver cyanate, by these chemists, was in reality one of the most momentous discoveries of the century. It was followed in quick succession by Faraday's discovery of a liquid hydrocarbon in oil gas, having the same percentage composition as the well-known olefiant gas: by Wöhler's epoch-making transformation of ammonium cyanate into urea—bodies made up of the same elements united in the same proportion, and yet possessing wholly dissimilar properties; and, lastly, by Berzelius's discovery that racemic acid and tartaric acid are identical in composition. These facts profoundly influenced chemical thought, by demonstrating that the attributes of bodies depend not merely on the nature and number of their components, but also on the mode in which these components are arranged and distributed. Chemists, for the first time, clearly recognised that their business was not only to determine the quality and quantity of the various atoms in a compound, but also the manner in which those atoms are grouped and held together. This, indeed, is the great problem of modern chemistry, and each successive theory of the last half century may be valued in proportion as it has ministered to this end. The idea of atomic grouping lay at the basis of the doctrine of radicals, by means of which the chemists of sixty years ago sought to make evident that organic compounds are fundamentally similar to inorganic substances. It lay, too, at the basis of the unitary views which, with the discovery of the principle of substitution by Dumas, began to gain ground in organic chemistry. The fact of substitution, indeed, is as inexplicable as the law of multiple proportions, except upon the atomic hypothesis. The nucleus theory of Laurent, and the different type theories of the French school, and of their successors in England, all tacitly recognised the existence of atoms.

The limits of this paper preclude the possibility of the attempt to show how these various theories have given place to more rational modes of viewing the structure of organic compounds. Unquestionably the two most powerful factors in determining the present character of organic chemistry have been, firstly, the recognition by Frankland in 1852 of the fact that the atom of every element is inherently endowed with a specific combining power varying within certain limits, whereby it is able to unite with a definite number of atoms of other elements; and secondly the hypotheses of Kekulé and Couper, which graft themselves directly on Frankland's discovery, concerning certain peculiarities in the mode of combination of the element carbon, the organic element *par excellence*. Although nothing is known as to the real cause of valency, that is to say, of the cause which enables the atom of carbon to take to itself and hold in stable union four atoms of hydrogen or of chlorine, and no more than four, and which forbids the atom of hydrogen or of chlorine to do the same thing as regards carbon, it will be obvious that the fundamental idea of valency is essentially atomic in conception.

From this time the attempts of chemists to unravel the internal structure or *constitution*, to use the term first introduced by Butlerow, of organic compounds took a new departure. Great numbers of compounds hitherto unknown and undreamt of were prepared because theory indicated their existence. The mode of genesis and the nature of the transformations of these bodies threw fresh light on the manner of the grouping of the atoms in bodies already known; and the knowledge thus gained enabled chemists to conceive of methods by which such bodies might be synthetically prepared. Indeed, it may be safely asserted that whenever the constitution of an organic substance is clearly made out, the synthetical formation of that body comes within the sphere of practical chemistry.

It may not be uninteresting in this connection to take a survey of the progress which has been made in synthetical chemistry during the last fifty or sixty years.

Such a survey, however rapid, will take us into every department of the organic world. During the past half-century the chemist has succeeded in forming the active principles or characteristic products of many plants; he has built up substances which have hitherto been regarded as made only by the very process of living of an animal; and he has formed substances which were thought to be produced only by changes in organized matter after death.

That particular day in 1828, when Wöhler first observed the transformation of ammonium cyanate into urea, should be accounted a red-letter day in the history of science. This discovery virtually gave the death-blow to the notion that the operations which are concerned in

the formation of the chemical products of the organic world are fundamentally different from those which take place in the inorganic world. Urea, as the final product of a series of tissue changes, is pre-eminently a typical product of animal life: no more characteristic example of a substance formed by the action of the so-called *vital force* could possibly be adduced. By demonstrating that urea can be made synthetically by ordinary laboratory processes and from substances inorganic in their origin, Wöhler proved that vital force is only another name for chemical action; and that an animal is nothing but a laboratory in which a multitude of chemical changes, similar to those which occur in our test-tubes and controlled by essentially the same conditions, is continually taking place.

Since the date of Wöhler's discovery urea has been synthetically prepared by many reactions. Thus it was obtained by Natanson by the action of ammonia on carbonyl chloride, and by Basarow by heating commercial carbonate of ammonia; its formation in this case is due to the circumstance that ordinary carbonate of ammonia, or "smelling salts," always contains a greater or less quantity of ammonium carbamate, which on heating is resolvod into urea and water. These reactions have a special interest from the circumstance that all the substances taking part in them can be formed directly or indirectly from their ultimate elements.

Associated with urea as a product of the oxidation of the nitrogenous compounds in the organism are *uric acid*, *xanthine* and *sarcine*. These bodies are met with in greater or less quantity in urine, and in certain forms of urinary calculi; and they are invariably present in blood and muscle juice. In chemical composition they differ from each other simply in the amount of oxygen they contain. Urea was first artificially transformed into uric acid by Horbaczewski. Its synthesis has also been effected by Behrend and Roosen by methods which afford evidence of the validity of the view of its constitution originally propounded by Medicus.

Closely related in chemical composition to these bodies are *theobromine* and *caffeine*, the active principles respectively of cocoa (the fruit of *Theobroma cacao*) and of coffee and tea.[1] Caffeine, indeed, is contained in a large number of vegetable products, infusions of which are used as beverages in various parts of the world. Thus, in addition to tea and coffee, it is found in maté, or Paraguay tea (the leaves of *Ilex paraguayensis*); in "guarana," the dried paste prepared from the seeds of *Paullinia sorbilis*, growing in South America; and also in the kola-nut, which is used as an article of

(1) It has been surmised, from the results of physiological experiments, that caffeine, the characteristic principle of coffee, differs from theine, the active principle of tea. Recent observations by Professor Dunstan have, however, conclusively demonstrated the identity of the two substances.

food in Central Africa. This widespread use of caffeine-containing products is undoubtedly of great physiological import, and its interest is enhanced by the intimate relationship which is now shown to exist between caffeine and the products derived from the oxidation of nitrogenous matters within the organism. Xanthine, indeed, has been recently transformed into theobromine by Emil Fischer by a method which is identical in principle with that used in 1860 by Strecker to effect the conversion of theobromine into caffeine. These bodies are closely related to *guanine*, a substance contained, as its name implies, in guano. Guanine, in fact, was transformed into xanthine by Strecker. Hence the active principle of tea and coffee could be obtained from guano, or if some method of transforming uric acid into xanthine could be devised—this transformation was at one time supposed to have been effected—caffeine could be synthetically made through the intervention of urea and uric acid from inorganic materials. The following scheme shows the successive steps of the synthesis :—

1. Carbon and oxygen give carbonic oxide.—*Priestley; Cruikshank.*
2. Carbonic oxide and chlorine give carbonyl chloride.—*J. Davy.*
3. Carbonyl chloride and ammonia give urea.—*Natanson.*
4. Urea gives uric acid.—*Horbaczewski, Behrend and Roosen.*
5. Uric acid to be transformed into xanthine.
6. Xanthine yields theobromine.—*Strecker.*
7. Theobromine gives caffeine.—*Fischer.*

Of late years much attention has been paid to the study of the putrefaction of albuminous substances of animal origin with the result that a considerable number of basic nitrogenous bodies, some of which are highly poisonous, have been isolated. These compounds were classed by the Italian toxicologist Selmi under the generic name of the *ptomaïnes* (πτῶμα, a corpse). They are the products of the vitality of the micro-organisms which are concerned in setting up the putrefactive change. Their discovery has greatly modified our views as to the mode of action of pathogenic organisms, and it is now regarded as not improbable that the disturbances are due rather to the poisonous products elaborated by the organism than to the mere presence of the organisms themselves. It ought to be stated, however, that the attempts hitherto made to isolate the toxic substances which may be formed by the growth of pathogenic organisms have been attended with only partial success. Thus Nencki was unable to detect any toxic substance among the products of anthrax, and *Staphylococcus aureus*, a common organism in abscesses, yields only a non-poisonous base. On the other hand, Brieger, to whom we owe the detection of a large number of these so-called cadaveric alkaloids, has found that the typhoid bacillus yields a poisonous substance which he has named *typhotoxine;* and

he has also discovered that the bacillus of tetanus forms a base, now called *tetanine*, which gives rise to symptoms which have a strong resemblance to those occasioned by the inoculation of the bacilli. All the ptomaïnes hitherto isolated are comparatively simple in composition and not very complex in chemical constitution. Some of them have been shown to be identical with bodies already known. Thus *choline* (χολή, bile), a non-poisonous alkaloid, originally found by Strecker in bile, in the brain, and in yolk of egg, and now known to be a product of the putrefaction of meat or fish, has been synthesised by Wurtz; whilst *neurine* (νεῦρον, nerve), a derivative of brain substance, originally confounded with choline, but differing from it in composition and in possessing intense poisonous properties, has been artificially produced by Baeyer and by Hofmann. Choline and neurine are closely related substances and can be readily transformed into each other. Another of the so-called corpse alkaloids, *cadaverine*, has also been synthetically formed by Ladenburg.

In 1870 Schmiedeberg and Koppe isolated the poisonous principle of the fungus *Agaricus muscarius*, which they named *muscarine*. Subsequently, Schmiedeberg and Harnack obtained muscarine by the oxidation of choline, which indeed accompanies it in many fungi, and from which it differs only in containing an additional atom of oxygen. It is noteworthy that muscarine also occurs with choline among the products of the putrefaction of flesh.

It is, however, among the products of plant life that some of the most notable syntheses of modern times have been effected. *Tartaric acid*, the characteristic acid of unripe grapes, and *citric acid*, the acid which gives sourness to limes, lemons, and oranges, have each been artificially prepared. The synthesis of tartaric acid may now be effected from its elements by a comparatively simple series of steps. The first step involves the artificial formation of ordinary *alcohol*. This was effected by Berthelot in the following way. When carbon is intensely heated in a stream of hydrogen gas a poisonous gaseous hydrocarbon termed *acetylene* is produced, which is characterised by giving a red powder with certain compounds of copper. Indeed, by means of this reaction the presence of acetylene in ordinary coal-gas and as a product of the imperfect combustion of many illuminating flames may be recognised. This compound of copper and acetylene, under the influence of reducing reagents, may be made to yield ethylene, or olefiant gas; this gas, as Faraday showed, is soluble in strong oil of vitriol with the formation of ethyl sulphuric acid, a substance which only requires distillation with water to convert it into ethyl (*i.e.* ordinary) alcohol.

Ordinary alcohol, under the influence of oxidising agents, gives rise to glyoxylic acid, from which, as recently shown by Genvresse,

the optically inactive modification of tartaric acid, the racemic acid discovered by Berzelius, may be formed. Racemic acid, as demonstrated by Pasteur, is a mixture of two modifications of tartaric acid which neutralise each other's optical activity. By taking advantage of certain remarkable differences in the crystalline characters of the sodium-ammonium salts formed from racemic acid, which he was the first to detect, Pasteur succeeded in separating the two constituents of racemic acid and in showing that one of these is the particular variety which occurs in the grape and other fruits, and which constitutes the tartaric acid of commerce. Hence the racemic acid obtained from the oxidation product of alcohol only requires treatment by Pasteur's method to yield the tartaric acid of the grape.

Many attempts have been made at various times to effect the artificial formation of plant-alkaloids such as quinine, morphine, strychnine, &c., but as yet with only partial success. There is little doubt, however, that such syntheses will be accomplished when the constitution of these complex substances is better understood. Up to the present only two alkaloids have been synthesised—one completely, viz., *conine*, the poisonous principle of hemlock (*Conium maculatum*), which has been made artificially by Ladenburg, and the other only partially, viz., *atropine*, one of the active substances in *Atropa Belladonna*.

The history of the synthesis of conine has a special interest. The naturally occurring conine obtained by Giesecke in 1827 has the power of turning the plane of polarised light to the right, whilst the conine first synthesised by Ladenburg was found to have no action on polarised light. Further research has shown that this conine stands to the naturally occurring alkaloid in the same relation that the artificially prepared racemic acid of Genvresse stands to the tartaric acid of fruits. By combining the artificial conine with tartaric acid, it is broken up into lævo-conine and into dextro-conine, the latter of which is identical with the natural variety.

Closely related to conine is *nicotine*, the poisonous constituent of tobacco. The constitution of this body is now fairly well understood, and its synthetical formation may be confidently looked for. Its parent substance is contained in coal-tar, and in the fœtid liquid obtained by distilling bones.

A considerable number of the odoriferous principles of plants have been obtained artificially, such, for example, as *bitter-almond oil* and *oil of mustard*. Indeed, the synthetically prepared oil of mustard has largely replaced the natural product in medicine as a vesicant and counter-irritant. The sweet-smelling principle of *Spiræa ulmaria*, or meadow-sweet, is readily formed by heating a

solution of carbolic acid in soda with chloroform. This substance may, as shown by Dr. Perkin, be readily transformed into *coumarin*, the crystalline odoriferous principle of the tonka bean and of woodruff. The *Maiweinessenz* used in Germany in place of woodruff in the manufacture of *Maiwein* is an alcoholic solution of artificially prepared coumarin.

Salicylic acid, which is now largely used as an antiseptic, could formerly only be obtained from oil of winter-green (*Gaultheria procumbens*). It is now prepared on a manufacturing scale by heating a compound of soda and carbolic acid in carbonic acid gas, and the synthetic product has now practically replaced the natural variety.

Vanillin, the aromatic principle of the dried fermented pods of certain orchids belonging to the genus Vanilla (Span. *vaynilla*, dim. of *vaina*, a pod), has had its constitution unravelled, with the result that it can now be synthetically prepared. Artificial vanillin is, in fact, made on an industrial scale in Germany, and threatens to supplant the natural product of Réunion and Mauritius as a flavouring agent in chocolate and confectionery. It is interesting to note that vanillin is found to be chemically related to the odoriferous constituents of cloves and allspice, and can be prepared from these substances.

Other plant products, of which the synthetic formation may be confidently looked for, are *caoutchouc* and *oil of turpentine;* and, curiously enough, the one will be obtained through the other, and both, indirectly, from coal-tar.

The story of the artificial formation of *alizarin* from coal-tar derivatives by Graebe and Liebermann in 1868, and of its successful commercial manufacture by Perkin in this country, and by Caro in Germany, is too well known to be repeated here. The synthetic formation of alizarin created nothing less than a revolution in one of our leading industries, and completely destroyed a staple trade of France, Holland, Italy, and Turkey. Alizarin is one of the main products of the madder plant, the roots of which have been used from time immemorial for the sake of the dyes which they contain. Pliny tells us that in his time madder was well known "to the sordid and avaricious; and this because of the large profits obtained from it owing to its employment in dyeing wool and leather." Originally it was grown almost exclusively in India, Persia, and the Levant. The Moors introduced it into Spain, whence it found its way into the Netherlands. Alsace and Avignon were long celebrated for their madder. Twenty years ago it was the most important of the natural dye-stuffs used by the calico printer and Turkey-red dyer; and the annual import of it into this country was valued at £1,250,000 sterling, the South Lancashire district alone consuming upwards of 150 tons weekly. The chemist has changed all this,

and the cultivation of the various species of the *Rubiaceæ* for the purposes of the dyer, which has continued for thousands of years down to our own time, is now practically at an end, and the remnant of a primeval vegetation has displaced the vegetation of to-day.

The remarkable industrial results which followed Graebe's and Liebermann's discovery naturally roused chemists to attempt the artificial formation of a dye-stuff not less important, viz., *indigo*. This has been accomplished, independently, by Baeyer, by Heumann, and by Heymann, but by methods which as yet do not allow the artificially formed indigo to compete successfully with the natural product. Now, however, that an insight into the chemical constitution of indigo has been gained, no one can say that its synthetic formation may not at any time become commercially successful.

No synthesis of recent years has created a keener or more widespread interest than that of the *sugars*, dextrose and levulose, which has been recently effected by Emil Fischer. It is interesting not merely as an instance of the artificial production of well-known substances, but also on account of the light it is calculated to throw upon the origin and mode of formation of the sugars in the vegetable kingdom. It is not possible, without entering into details too technical in character to be in place here, to trace the successive steps of the process by which this synthesis has been effected; but it may be interesting to note that it has been accomplished through the medium of *glycerin*, a proximate constituent of the fats, and itself capable of being formed from ordinary alcohol, which in its turn can be produced, as already stated, from its elements. Hence it is possible to indicate a method by which sugar can now be formed from its ultimate elements—that is, from inorganic sources.

The advance in every section of chemistry during this century, and especially during the latter half of it, has literally been by leaps and bounds. Although practically a creation of our own time, no branch has been more fruitful in result, in suggestion, or in possibility than that of organic synthesis. The mere gain in the knowledge of fact is immeasurable; it is even more impossible to gauge the profound effect of that knowledge on other departments of human effort and intellectual activity.

Past history shows only too well that there is a tide in the affairs of science, as in all other things that constitute affairs of men. There are periods of ebb and flow, of advance and retrogression. But of this we are certain—in chemistry the flood has only just set in, and it is still very far from high-water mark.

T. E. Thorpe.

ROME REVISITED.

He who revisits Rome to-day in these busy times of King Umberto, having known the Eternal City of the last generation in the torpid reign of Pio Nono, cannot stifle the poignant sense of having lost one of the most rare visions that this earth had ever to present. The Colosseum, it is true, the Forum, the Vatican, and St. Peter's are there still; they make constant new discoveries—fresh sites, statues, palaces, tombs, and museums are year by year revealed to the eager tourist; and many a once-sealed cloister and chapel is now a public show. But the light and poetry have gone out of it for ever. Vast historic convents are cold and silent as the grave, and the Papal city is like a mediæval town under interdict. French boulevards are being driven through the embattled strongholds of Colonnas and Orsinis, and omnibus and tram-car roll through the Forum of Trajan, and by the Golden House of Nero. The yellow Tiber flows between granite quays, but the mouldering palaces and the festooned arches that Piranesi loved have been improved away.

May he who is neither *codino*, ultramontane, nor pessimist utter one groan of regret for the halo that once enveloped Rome? We may know that it was inevitable, even know that it was the price of a nation's life, and yet feel the sorrow which is due to the passing away of some majestic thing that the world can never see again. It is now nearly twenty years since the late Professor Freeman, then visiting Rome for the first time, wrote as his forecast that if Rome, as the capital of Italy, should grow and flourish, a great part of its unique charm would be lost, and the havoc to be wrought in its antiquities would be frightful. The havoc is wrought; the charm is gone, in spite of startling discoveries and whole museums full of new antiquities. It had to be.

In the space of some thirty years I have visited Rome four times, at long intervals, and each time I groan anew. I was *Italianissimo* in my hot youth, and I am assuredly not *Papalino* in my maturer age. I rejoice with the new life of the Italian people; I know that for the regenerated nation Rome is essential as its capital; I know that a growing modern city must wear the aspect of modern civilisation. I repudiate the whining of sentimentalists over the conditions of modern progress; and the advice which Napoleon's creatures gave to the Romans, "to be content with the contemplation of their ruins," has the true ring of an oppressor. We acknowledge all that, and are no obscurantists to shudder at a railroad with Ruskinian affec-

tation. But yet, to those who loved the poetry of old Papal Rome, the prose of the modernised new Rome is a sad and instructive memory.

When I first saw Rome, it was not connected by any railway with the rest of Italy. We had to travel by the road, and I cannot forget the weird effect of that Roman Maremma, purple and crimson with an autumn sunset; the buffaloes, and the wild cattlemen and *pecorari* in sheepskins; the old-world coaches and postilions; the desolate plain, broken by ruins and castles; the mediæval absurdities of Papal officialism; the suffumigations and the *visas;* the cumbrous pomposity of some Roman *principi* returning from *villeggiatura*—it was as though one had passed by enchantment into the seventeenth century, with its picturesque barbarism, and one quite expected a guerilla band of horsemen to issue from the castle of Montalto.

And then Rome itself, so perfectly familiar that it seemed like a mere returning to the old haunt of childhood, with its fern-clad ruins standing in open spaces, gardens, or vineyards; the huge solitudes within the walls; the cattle and the stalls beneath the trees on the Campo Vaccino, forty feet above the spot where now professors lecture to crowds in the recent excavations; the grotesque parade of cardinals and *monsignori;* the narrow, ill-lighted streets; the swarm of monks, friars, and prelates of every order and race; the air of mouldering abandonment in the ancient city, as of some corner of mediæval Europe left forgotten and untouched by modern progress, with all the historic glamour, all the pictorial squalor, all the Turkish routine, all the magnificence of obsolete forms of civilisation which clung round the Vatican and were seen there only in Western Europe.

It had to go, and it is gone; and Rome, in twenty or thirty years, has become like any other European city—big, noisy, vulgar, overgrown, Frenchified, and syndicate-ridden, hardly to be distinguished from Lyons or Turin, except that it has in the middle of its streets some enormous masses of ruin, many huge, empty convents, and some vast churches, apparently abandoned by the Church. But the ruins, which used to stand in a rural solitude like Stonehenge or Rievaulx, are now mere piles of stone in crowded streets, like the Palais des Thermes at Paris. The sacred sites of Forum and Roma Quadrata are now objects in a museum. The *Cloaca* are embedded in the new stone quay, and are become a mere "exhibit," like York House Water-Gate in our own embankment. The wild foliage and the memorial altars have been torn out of the Colosseum, and the Ælian Bridge is overshadowed by a new iron enormity. Rome, which, thirty years ago, was a vision of the past, is to-day a busy Italian town, with a dozen museums, striving to become a third-rate Paris.

The mediæval halo is gone, but the hard facts remain. For to the historian Rome must always be the central city of this earth—the spot towards which all earlier history of mankind must in the end converge—from which all modern history must issue. Rome is the true microcosm, wherein the vast panorama of human civilisation is reflected as on a mirror. It is this diversity, continuity, and world-wide range of interest which place it apart above all other cities of men. This one is more lovely, that one is more complete; another city is vaster, or another has some unique and special glory. But no other city of the world approaches Rome in the enormous span of its history, and in this character of being the centre, as the Greeks said the ὀμφαλός, if not of this planet, at least of Europe.

From this point of view, it cannot be denied that the recent changes which have destroyed the poetry of Rome have greatly enlarged its antiquarian interest. What the poet and the painter have lost the historian has gained. Regarded as a museum of archæology, the city is far richer to the student. And that not merely by multiplication of remains, statues, and carvings, similar to what we had, but by new discoveries which have modified our knowledge of the history of the city. The continually growing mass of pre-historic relics, the Etruscan tombs and foundations on the Aventine and the Esquiline, the early fortifications of the Palatine, the remains of regal Rome, the systematic exploration of the Forum and the Palatine, the house of the Vestals, the contents of the Kircher Museum, and of the new Museum in the baths of Diocletian, the excavation of the Colosseum, and of the palace of Nero, the complete tracing of the Servian circumvallation, and all that has been done to re-open cemeteries and tombs—have given a new range and distinctness to the history of Rome as a whole.

We must now extend that history backwards by centuries before the mythical age of Romulus and his tribesmen on the Palatine; and we know that somewhere on the Seven Hills there once dwelt one of the most ancient pre-historic races of Europe. Even the speculative builder and the hated railroads have enriched the museums and opened unexpected treasures to the antiquarian. One is forced to confess that to historical research new fields have been opened, even whilst the unique vision of the Eternal City faded away as quickly as a winter sunset. The Cæsars found Rome of brick, and left it of marble. The House of Savoy found it a majestic ruin; they have made it an inexhaustible museum.

Compare Rome with other famous cities, which far surpass it in mediæval associations — with Florence, Venice, Rouen, Oxford, Prague. They present at most four or five centuries of the Middle Ages with vivid power and charm: but this is only one chapter in the history of Rome. Athens, Constantinople, Venice, are more

beautiful. And if Constantinople surpasses Rome in the dramatic contrast of Asia and Europe, and the secular combat between the East and the West, Byzantium was but a late imitation of Rome, and the tremendous scenes which the Bosphorus has witnessed were but episodes in the long annals of the Tiber. Constantinople, indeed, was a Rome transported bodily to the East. Paris and London surpass Rome in that they record a thousand years of the destiny of nations still growing, and that we can hear in their streets the surging of a mighty life to which that of Rome is a poor provincial copy. But the thousand years of Paris and of London are but a span in the countless years of the Eternal City. All roads lead to Rome: all capitals aim at reviving the image and effect of the Imperial City: all history ends with Rome, or begins with Rome.

There are three elements wherein the historical value of Rome surpasses that of any extant city: first, the enormous continuity of its history; next, the diversity of that interest; and lastly, the cosmopolitan range of its associations. These hill-crests beside the Tiber have been the home of a disciplined people (we must now believe) for some three thousand years, and it may well be much more; and during the whole of that vast period there has been no absolute or prolonged break. Athens, Jerusalem, Antioch, Damascus, Alexandria, Syracuse, Marseille, and York, whatever they may once have been, whatever they may have recently become, fell out of the vision of history for long centuries together, like some variable star out of heaven, and sank into insignificance and oblivion. To very many the city of David and of the Passion has absorbing interests, such as no other spot on earth can approach; just as to the scholar the scene from the Pnyx at Athens calls up a sum of memories of unique intensity and delight. But the four transcendant centuries, when Athens was the eye of Greece, the eye of the thinking world, were followed by a thousand years when Athens was an obscure village; and if the ancient history of Jerusalem was longer than that of Athens, it has been followed by a still more overwhelming fall.

All other famous cities of the ancient world have waned and fallen, in some cases, as with Athens, Alexandria, and Marseille, to rise again out of a sleep of ages. Or, if like Paris and London, they are growing still, it is during some four or five centuries only that they have been the foremost cities of the world. But for two thousand years Rome has enjoyed an unbroken pre-eminence, for four centuries as the temporal mistress of the civilised world, and for some thirteen centuries as the spiritual head of the Catholic world. This dominant place in human evolution, prolonged over such immense periods of time in unbroken continuity, make Rome

the spot on earth where the story of civilisation can be locally centred and visibly recorded.

This is the real power and the true lesson of Rome; and in a dim way, it was felt by our ancestors who in the olden days made the "grand tour" to enrich their galleries and to confer with *virtuosi*, or who in a later age followed the footsteps of *Corinne*, Goethe, and Byron. Something of the kind remained down to the time of Pio Nono. There was still a certain unity of effect in Rome; and even the more frivolous tourists had some sense of that over-mastering human destiny which caused Byron to break forth—

"O Rome, my country, city of the soul!"

But all that has happened in the last twenty years has destroyed that visual impression. The sudden swelling forth of the city into a modern busy town three or four times larger than the old sleepy city of the popes, the suppression of the convents and the external ceremonial, and the sullen withdrawal of the Papacy, the deadly war between modern democracy and ultramontane ecclesiasticism, the flooding of the old city with the triumphs of the modern builder, and the Haussmannisation of the most romantic of European cities —all this has made it an effort of the abstract mind to look on Rome as the historic capital; and as to the "city of the soul," one might as easily imagine it at Lyons, Milan, or indeed Chicago. And thus, the recent modernisation of Rome has destroyed the sense of historical continuity, that unique effect of Rome as "mother of dead empires," and all that Byron poured out with his passionate imagination and his scrambling rhymes. In the days of Byron, Goethe, and Shelley, as it had been in the days of Claude, of Piranesi, of Madame de Stael, and Gibbon, as it still was down to the days of Andersen, Hawthorne, and Browning, Rome was itself a poem: a sombre, majestic, most moving dirge—but an artistic whole—a poem. The Italian kingdom and modern progress have made it a capital up-to-date, with a most voluminous *Dictionary of Antiquities*.

But the new edition of the *Dictionary of Antiquities*, as edited by the House of Savoy, from 1870 to 1893, is immensely enlarged and almost re-written. The brain may still recover more than the eye has lost. But it has become a strain on the imagination in the last decade of this century to revive in the mind's eye that historic continuity of the Eternal City, which till past the middle of this century, was vividly presented even to the uninstructed eye. And the melancholy result is this—that Rome to-day is parcelled out into heterogeneous and discordant sections, which of old were simply impressive contrasts in the same picture; and they who visit Rome with some special interest find nothing to attract them to the rival interests and the antagonistic worlds.

They who go to Rome for the same reasons that they go to Paris or Vienna, see little at Rome more than in any other European capital, unless it be a few masses of ruins, and some enormous palaces and churches. The scholar and the antiquarian buries himself in museums, libraries, or excavations; and to-day it hardly strikes him at all that he is in the palpitating heart of Christendom, or that he is passing blindfold amidst some of the most poetic scenes in the world. Of old this pathos and charm pierced even the dullest pedant's heart; but now, with avenues, tramcars, electric lighting, and miles of American hotels, he does not notice in modern Rome the rare glimpses of old Rome. And the Catholic pilgrim is so hot with rage and foreboding that to ask him to acknowledge either beauty or interest outside the cause of the Vatican, is a heartless mockery of all that he holds highest. And thus Rome, which to our fathers had the soothing effect of a Mass by Palestrina or a glowing sunset after storm, now fills us with the sense of deadly passions, coarse desecration of what man has long held sacred, the incongruous mixture of irreconcilable ideas and mutual scorn. Bruno and Mazzini jostle Loyola and the *Bambino*. Tramways and iron bridges over-ride basilicas and temples.

It is all the more needful then for those who love the great historic cities and their lessons to strive against the sectional aspects of Rome and to insist on its historic unity, in spite of the ravages of modern progress. Many, of course, will still go to Rome for its picnics or the court balls of Queen Margherita, to hunt the fox or to pick up a curio, to copy a manuscript or a Guido, to catch a glimpse of the Pope or to crawl up the *Scala Santa*. But the truth remains that, for those who have eyes to see, the pre-eminence of Rome as a city consists in the combination and succession of all its varied interests. And although the continuity of its history is now far less directly conspicuous, and although on the surface Rome has now been promoted (or degraded) to the level of any other European capital, the record of the past is becoming far richer and more legible for those who with patience continue to read it; and it is still possible to forget ambitious municipalism and the pandemonium of the jerry-builder, even whilst accepting the mosaics and the bronzes their workmen have turned up, and the walls of the kings which they have laid bare and pierced.

The various interests all group themselves under three heads, the Rome of antiquity, the Rome of the Church, the Rome of poetry, romance, architecture, painting, sculpture, music. Down to the middle of this century, these were blended unconsciously into a certain harmony; and it was the mysterious unison of these separate chords which has inspired so much poetry and art from the age of the *Farnesina* down to that of *Transformation*. Since the middle of the

century and the tremendous events of 1849, it has been an effort of the imagination to catch the harmony rather than discord. And in the last twenty years, since the entrance of the King of Italy, the effort has become year by year more difficult. But with patience it may still be done. And we may yet venture to plead for Rome that, shorn as she is of her old unique magic and power, she remains still the greatest historical school in the world, and has not even yet descended to the level of Nice or Hombourg.

The visible record of antiquity is continuous for at least a thousand years—indeed between the Column of Phocas and the earliest tombs we may possibly count an interval far longer. For five centuries at least, down to the final completion of the Rome of the East, Rome of the West was the spot where the whole force of the ancient world was concentrated—its wealth, its art, its science, its material, intellectual, and moral power. This planet has never witnessed before or since such concentration on one spot of the earth as took place about the age of Trajan, and let us trust it will never witness it again. From the Clyde to the Euphrates, from the Caucasus to the Sahara, the earth was ransacked for all that was pleasant, beautiful, or useful, whether in the produce of nature or in the arts of man. And it was flung down together on the banks of the Tiber with a wild profusion and with a lavish magnificence which has never been equalled, though sometimes imitated.

To that dazzling world of power, beauty, luxury, and vice there succeeded the Christian Church with its fifteen centuries of unbroken organic life. This—far the longest and most important movement in the history of mankind—yet forms but one element in the history of the Eternal City, and the one element which to most Protestant tourists is the least conspicuous, if not almost forgotten. But the succession of spiritual empire to the inheritance of temporal empire in Rome is perhaps of all phenomena in history the most fascinating and the most profound, with its subtle analogies and infinite contrasts, with its sublime profession of disdain and its irresistible instinct for adaptation, its savage spirit of destruction combined with an unconscious genius of imitation. For the Church took the classical form for its model, and ended by setting it up as a revelation, even whilst engaged in cursing it in words and demolishing it in act.

That New Birth of free life which we call Humanism, or the Revival, or Renascence, was soon drawn towards Rome, and indeed for a time had its inspiration from the Papal world itself. Though Rome was not its birthplace nor in any sense its natural home, yet Rome drew to herself the Tuscan and Lombard genius as she had drawn the Attic and the Alexandrian genius to her before; and thus Rome became at last the great theatre for the Renascence, the

stage whence its most potent influence over Europe was manifested and shed abroad. Not that any Roman approached in genius the great Florentines or Venetians, or that Rome was at any time so noble a school of imagination as Florence or Venice, or even Siena or Verona. But the vast resources collected in Rome, the fabulous power of her great ecclesiastics, and the central and European position she held, made Rome for some three centuries one of the main adopted cradles of the Renascence. And if we include all the work and influence of Bramante, Michael Angelo, Raffaelle, Bembo, Cellini, Palestrina, Guido, Bernini, the architecture, the painting, the sculpture, the mosaics, the engraving, the drama, the music, the scholarship, the poetry, Rome must be counted as the most influential centre of the Renascence.

It was not effected by native Romans, nor was it the offspring of a local school. Much of its influence was meretricious, and much of it was essentially debasing. But it governed, by its evil as much as by its strength, the thought of Europe; and if we take the whole range of art, thought, and culture, Rome became at last its most prolific, most active, and most varied centre. Rome was the destined resort of artists in all fields for some five hundred years, from Giotto to Mozart, and the magic of Rome as an artistic paradise has hardly yet passed away in Europe. Nay, if we consider the vast influence over all subsequent building and all subsequent painting of St. Peter's Church and Raffaelle's designs, and of church ceremonial and music, of the classical mania and of romantic poetry, if we add such minor influences as those of Poussin, Claude Lorrain, Metastasio, Piranesi, Winckelmann, Niebuhr, Canova, and Thorvaldsen, we see at once how largely Rome has been the clearing-house for the popularisation of art in the last three centuries.

Much of it was artificial, theatrical and feeble. But historically its development is curiously full of interest, as its influence over the modern mind has been almost without a limit. Why do Catholic worshippers from Warsaw to Cadiz, in Santiago, in Mexico, or Manilla, crowd into churches with a rococo jumble of gilded domes and pirouetting saints? Because the great *cinquecento* artists built up St. Peter's as we see it to-day; and Jesuit demagogues developed that type into the gilt *pot-pourri* which attracts the ignorant Catholic in every corner of the planet. Florence was doubtless the birthplace and nursery of Renascent art. But directly that the Renascence was captured and transformed by Jesuitism, Rome became its official seat. And in the evolution of human art, there is no record more instructive than that still stamped on the churches and palaces of the Eternal City.

The Rome of antiquity, the Rome of the Church, the Rome of odern art are indeed three separate worlds; and it is their contrast,

their juxtaposition, their curious blending of mutual hate and mutual reaction, which forms the most instructive page of all history. Each of the three worlds may be seen in a more intense form elsewhere. The valley of the Rhone and the shores of the Adriatic have still a greater mass of imperial remains than the City itself. The Apennine hill towns, and perhaps mediæval Paris, have a truer record of the Church. And Florence is the true cradle of modern art. But in Rome all three are combined, and their continual reaction, one on the other, is matter for inexhaustible thought.

Rome, as a city, is thus a visible embodiment, type, or summary of human history, and, in these days of special interests or tastes, the traveller at Rome too often forgets this world-wide range and complexity. To the scholar the vast world of Christian Rome is usually as utter a blank as to the Catholic pilgrim is the story of Republic and Empire. To the artist both are an ancient tale of little meaning, though the words are strong. He who loves "curios" is blind too often to the sunsets on the Campagna. And he who copies inscriptions is deaf to the music of the people in the Piazza Navona, or the evening Angelus rung out from a hundred steeples. All nations, all professions, all creeds jostle each other in Rome, as they did in the age of Horace and Juvenal; and they pass by on the other side with mutual contempt for each other's interests and pursuits. But to the historical mind all have their interest, almost an equal interest, and their combination and contrasts form the most instructive lesson which Europe can present.

We have had whole libraries about Rome pictorial, Rome ecclesiastical, Rome artistic, Rome antiquarian; about classical, mediæval, papal, cinque-cento, rococo, modern Rome. There is still room for a book about the city of Rome as a manual of history; about the infinite variety of the lessons graven on its stones and its soil; about its contrasts, its contradictions, its immensity, its continuity; the exquisite pathos, the appalling waste, folly, cruelty, recorded in that roll of memories and symbols. Such a book would gather up the thoughts which, as he strolls about the Eternal City, throng on the mind of every student of human nature, and of any historian who is willing to read as one tale the history of man from the Stone Age down to Pope Leo XIII.

Of all places on earth, Rome is the city of contrasts and paradox. Nowhere else can we see memorials of such pomp alongside of such squalor. The insolence of wealth jostles disease, filth, and penury. Devoutness, which holds whole continents spell-bound, goes hand in hand with hypocrisy and corruption. What sublime piety, what tender charity, what ideal purity, what bigotry, what brutality, what grossness! Over this convent garden pensive mysticism has thrown a halo of saintliness: it is overshadowed by a palace which

has one black record of arrogance. There, some tomb breathes the very soul of spiritual art; beside it stands another which is a typical monument of ostentation. Here is a fragment worthy of Praxiteles, buried under costly masses of rococo inanity. Works that testify to stupendous concentration of power stand in a chaos which testifies to nothing but savagery and ruin. The very demon of destruction seems to have run riot over the spot that the very genius of beauty has chosen for his home.

The eternal lesson of Rome is the war which each phase of human civilisation, each type of art, of manners, of religion, has waged against its immediate predecessor:—the fury with which it sought to blot out its very record. When Rome became Greek in thought, art, and habits, it destroyed almost every vestige of the old Italian civilisation which was the source of its own strength; and recent excavations alone have unearthed the massive walls, the pottery, bronze and gold work of the ages before Rome was, of the ages of Servius, Camillus, and Cincinnatus. Imperial Rome pillaged Greece, Asia, and Africa, and heaped up between the Quirinal and the Vatican priceless treasures of an art which it only understood well enough to covet and to rob. When the Gospel triumphed over Imperial Rome, it treated the palaces of the Cæsars as dens of infamy, and their monuments as blasphemous idols and offences to God. When the Anti-Christian Revival was in all the heyday of its immoral rage after beauty, it treated the Catholicism of the Middle Ages as a barbarous superstition. Popes and cardinals destroyed more immortal works of beauty than the worst scourges of God; and the most terrible Goths and Vandals that the stones of Rome ever knew were sceptical priests and learned *virtuosi*. Nay, in twenty years the reformers of the Italian kingdom have wrought greater havoc in the aspect of Papal Rome than, in the four centuries since Julius II., popes and cardinals ever wrought on Classical and Mediæval Rome.

At every turn we come on some new crime against humanity done by fanaticism or greed. Into Imperial Rome there was swept, as into the museum of the world, the marbles, the statues, the bronzes, the ivories, the paintings and carvings, the precious works of human genius for some six or seven centuries—everything of rarity and loveliness that could be found between Sicily and the Black Sea. There were tens of thousands of statues in Greek marble, and as many in bronze; there were marble columns, monoliths, friezes, reliefs, obelisks, colossi, fountains, halls, porticoes, temples, theatres, baths, all crowded with the spoils of the world, and enough to furnish forth ten such cities as London, Paris, or New York. It is all gone. There are but a few fragments now that chance has spared. Twenty sieges, stormings, pillages, a

hundred conflagrations, the barbarous greed of the invading hordes, the barbarous fanaticism of the first Christians, the incessant wars, revolutions, riots and faction fights of the Middle Ages, the brutal greediness of popes, cardinals, their nephews and their favourites—worst of all, perhaps, modern industrial iconoclasm—have swept away all but a few chance fragments.

In the time of Pliny there must have been still extant thousands of works of the purest Greek art of the great age. There is now not one surviving intact in the whole world; and there are but two—the *Hermes* of Olympia and the *Aphrodite* of Melos—of which even fragments remain in sufficient preservation to enable us to judge them. Every other work of the greatest age is either, like our Parthenon relics, a mere ruin, or is known to us only by a later imitation. Of the bronzes not a single complete specimen of the great age survives. And this loss is irreparable. Even if such genius of art were ever to return to this earth again, it is certain that the same passion for physical beauty, the same habit of displaying the form, can never again be universal with any civilised people. And thus by the wanton destructiveness of successive ages, one of the most original types of human genius has become extinct on this earth, even as the mastodon or the dodo are extinct.

But masterpieces of marble and bronze were dross in comparison with the masterpieces of the human soul, of intellect, purity, and love, that have been mangled on this same spot and in sight of these supreme works of genius. The Christian pilgrim from some Irish or American monastery, from Santiago in Chile, from Armenia or Warsaw—the Catholic missionary on his way to die in China, or Polynesia, or Uganda—prostrates himself in the dust where Paul was beheaded and Peter crucified, where Gregory and Augustine prayed, and in the Colosseum he sees nothing but a monstrous black ruin; but he kneels in the arena where the blood of martyrs was poured forth like water, which has witnessed such heroic deaths, such revolting crimes. Each zealot—Catholic, Protestant, or sceptic—remembers only his own martyrs. Romans massacred Gaul and Goth; Polytheists martyred Christians; Papal creatures tortured Republicans, Protestants, and Reformers; emperors' men slew popes' men, and popes' men slew the emperors' men; Colonnas and Orsinis, Borgias and Cencis, Borgheses and Barberinis have poured out blood upon blood, and piled up crime on crime, till every stone records some inhuman act, and witnesses also to courage and faith.

The fanaticism of these same priests and missionaries has its own reaction. As the Catholic pilgrim to-day prostrates himself on the spot where for eighteen centuries Christian pilgrims from all parts of the earth have prostrated themselves, the followers of Garibaldi and Mazzini glare on them with hatred and contempt; so that, but

for soldiers and police, no priest in his robes would be safe of his life in Rome. The death-struggle between Papacy and Free Thought was never more acute. Hundreds of churches are bare, deserted, without the semblance of a congregation. Of late years, one may visit famous churches, known throughout the Catholic world, and find oneself, for hours together, absolutely alone; and sometimes they serve as the resort of a pair of lovers, who choose the church as a place to meet undisturbed in perfect solitude. Vast monasteries, which for centuries have peopled Christendom with priests and teachers, are now empty, or converted to secular uses. The Pope is "the prisoner of the Vatican," and the Papal world has withdrawn from public view.

Nowhere else in the world are we brought so close face to face with the great battles of religion and politics, and with the destruction wrought by successive phases of human civilisation. This destruction is more visible in Rome, because fragments remain to witness to each phase; but the destruction is not so great as elsewhere, where the very ruins have been destroyed. At Paris, Lyons, London, York, Cologne, and Milan, the Roman city has been all but obliterated, and the mediæval city also, and the Renascence city after that; so that, for the most part, in all these ancient centres of successive civilisations, we see little to-day but the monotony of modern convenience, and the triumphs of the speculative builder. But at Rome enough remains to remind us of the unbroken roll of some three thousand years.

At Rome we *see* the wreckage. At Paris and London it has been covered fathoms deep by the rising tide. They are finding now the tombs, arms, ornaments, and structures of the primitive races who dwelt on the Seven Hills before history was. We may now see the walls which rose when the history of Rome began, the fortress of the early kings, and their vast subterranean works. We can still stand on the spot where Horatius defended the bridge, and where Virginius slew his daughter. We still see the tombs and temples, the treasure-house of the Republic. We see the might and glory of Rome when she was the mistress of the world and the centre of the world. We see the walls which for centuries defied the barbarians of the North; we see the tombs of the Christian martyrs, and trace the footsteps of the great Apostles; we see the rise, the growth, the culmination and the death-struggles of the Catholic Papacy. We see the Middle Ages piled up on the ruins of the ancient world, and the modern world piled on the ruins of the mediæval world. At Rome we can see in ruins, fragments, or, it may be, merely in certain sites, spots, and subterranean vaults, that revolving picture of history, which elsewhere our modern life has blotted out from our view.

Take the Pantheon—in some ways the central, the most ancient, the most historic building in the world. For more than 1,900 years it has been a temple—first of the gods of the old world, and since of the Christian God. It is the only great extant building of which that can now be said. It is certainly the oldest building in continuous use on earth, for it was a temple of the pagan deities one hundred years before the preaching of the Gospel at Rome; dedicated by the minister and son-in-law of Augustus in the first splendour of the Empire; converted after six centuries into a Christian church and burial-place, when it was filled with the bones of the martyrs removed from the catacombs. The festival of All Saints thereupon instituted is the one Christian festival which modern scepticism concurs in honouring. In the Revival, the Pantheon became the type of all the domed buildings of Europe—first as the parent of the dome of Florence, thence of the dome of St. Peter's, through St. Peter's of our own St. Paul's, and so the parent of all the spherical roofs of the Old and the New World. As such a type, it was the especial study of the humanist artists of the Revival, and so perhaps it was chosen for the tomb of Raphael. There, amidst a company of painters, scholars, and artists, his sacred ashes lie in perfect preservation; and but lately he has been joined in death by the first King of United Italy, who lies in a noble monument, round which Catholics and Liberals are still glaring at each other in hate. Plundered by Christian emperors, plundered by popes and cardinals, it still remains, to my eyes, the most impressive, original, and most perfect building extant.

Imagine the Pantheon in its glory, before it was stripped of its gold, its bronze, and marbles, and statues by emperors and popes. Conceive that vast, solid dome, still the largest span in the world—nearly one and a half more than the diameter of St. Paul's—the first great dome ever raised by man, the grand invention of Romans, of which the Greeks in all their art never dreamed. The dome, with the round arch out of which it sprang, is the most fertile conception in the whole history of building. The Pantheon became the parent of all subsequent domes, and so of that of Holy Wisdom at Constantinople, which was the parent of the Byzantine domes of Europe and of Asia.

We can recall its roof of solid concrete, moulded and plated within, and covered with gilt bronze plates without; with its statues, the enormous columns of rare marbles and granite, its upper story of porphyry and serpentine, lit only by one great circle thirty feet in diameter, through which the open sky by day and the stars by night look down on the marble pavement. To this wonderful building, the one relic of the ancient world in its entirety, the builders of all after ages turned.. For five centuries the Roman world turned to

it; till out of it arose a new art in Constantinople. Then in the fifteenth century at the Revival the humanist artists turned again to this same great work; it gave rise first to the dome of Florence, and then to the dome of St. Peter's, 150 years later; from St. Peter's the dome spread over the world—the *Panthéon* and the *Invalides* at Paris, St. Paul's in London, the Capitol at Washington, the Isaac Church at St. Petersburg are mere imitations of St. Peter's. And thus from the Pantheon has sprung the architecture which from Chile to Chicago, from the British Islands to the Turkish Empire, from St. Petersburg to Sicily, is seen in a thousand varieties, and in ten thousand examples.

But it is not the Pantheon, nor indeed any ancient temple, which served as the original type for the Gothic churches of Europe down to the ascendency of the Petrine type at the end of the sixteenth century. Nothing in the history of architecture is better established than the evolution of the Gothic Cathedral out of the civil basilicas of the ancient world. The whole course of that evolution can be traced step by step at Rome, in Santa Maria Maggiore, St. Paul's, St. John Lateran, St. Clement's, St. Agnes', St. Lawrence, and the older churches of the basilican type. Thus with the basilicas, extant, converted, or recently destroyed, as the matrix of the Gothic churches from the fifth to the fifteenth centuries, and the Pantheon as the matrix of the neo-classical churches from the fifteenth to the nineteenth century, we feel ourselves at Rome in the head-waters from which we can trace the flow of all modern architecture.

If the Pantheon be historically the central building in Rome, it is by no means amongst the oldest. Nor are the walls of *Roma quadrata*, nor the first structures of the Palatine. The Egyptian obelisks carry us back to a time almost as remote from the Pantheon as the Pantheon is from us. The oldest perhaps date from the Pharoahs who built the Pyramids, and they were made to adorn the temple of the Sun on the banks of the Nile, thence were brought by the first Cæsars to adorn a circus, or to give majesty to a mausoleum, then thrown down and cast aside in Christian ages as monuments of heathendom and savage shows. Again they were restored in the classical revival after a thousand years of neglect, and set up to witness to the pride of popes to adorn the capital of Christendom.

What an epitome of human history in those vast monoliths, the largest of which is thirty-six feet higher than Cleopatra's Needle on the Thames, and is more than three times its weight; for a thousand years witnessing the processions of Egyptian festivals, then for some centuries witnesses of the spectacles and luxury of the Imperial city, then for a thousand years cast down into the dust, but too vast to be destroyed, and then set up again, with the blessings of popes and the ceremonies of the Church, crowned with the symbol of the Cross, to

witness to the grandeur of the successor of St. Peter. They have looked down—these eternal stones—on Moses and Aaron, on Pharoahs and Greeks and Persians, on Alexander and Julius, on Peter and Paul, on Charlemagne and Dante, on Michael Angelo and Raphael. These stones were venerable objects before history began; they have been objects of wonder to the three great religions, three races, and three epochs of civilisation.

One can forgive destructive municipalism much for at last rescuing from ignoble uses the burial places of the Cæsars. There are no edifices in Rome more interesting to the historian than those vast mausolea—the grandest and most imposing tombs that exist—the mausoleum of Augustus, that of Hadrian, of Cæcilia Metella, the Pyramid of Cestius. That of Augustus, for a hundred years the burial place of the Cæsars and their families, then a castle of the Colonnas, the scene of endless civil wars, afterwards a common theatre for open air plays, is now at last recovered, to be preserved as a monument of antiquity. The yet vaster mausoleum of Hadrian, for another hundred years the burial place of the later Cæsars, a huge tower of 240 feet in diameter, and rising to 160 feet in height, a dazzling mass of statuary, marble, columns, bronze and gilding, then a fortress that bore the brunt of countless sieges, the citadel of the popes, their prison-house, their refuge, and their treasure-house, adorned with frescoes by pupils of Raphael, and famous in the anecdotes of Cellini, with cells, halls, and chambers crowded with anecdotes: at last a barrack of the Pope and then of the King of Italy.

This too, as one of the buildings of antiquity which has been in use continuously since the Empire, witnesses at once to the grandeur of the Cæsars, to the tempest-tossed history of Rome in her Decline and Fall, to the robber bands of the Middle Ages, to the infamies of the Papacy of the tenth century and of the sixteenth century. The history of Rome from Theodoric to Victor Emmanuel, the sieges, the wars of the popes, the whole story of their temporal power, seem to group round that Castle of the Angel who stayed the Pestilence at the prayers of Saint Gregory. Within it was the porphyry sarcophagus which once held the dust of Hadrian. Strange is the story of that stately coffin. After a thousand years it was carried off to St. Peter's by Innocent II. for his own body, and it was burnt in a conflagration two centuries later. The porphyry lid of it was used in the tenth century for the coffin of the Emperor Otho II. Seven centuries later his ashes were ejected by a pope, and it was converted into the baptismal font of St. Peter's, where it now rests. What an epitome of the history of Rome! This precious marble of the East, made to cover the dust of the Roman master of the world in the grandest tomb of Europe, desecrated and cast aside by barbarous invaders, one half of it was used as his coffin by the

Emperor the successor of Charlemagne, the other is adopted for his own coffin by the Pope the friend and *protégé* of St. Bernard. This half is destroyed by fire; the other half is still the font in the central Church of Christendom. The Empire of the Cæsars, the Empire of Charlemagne, the Mediæval Papacy, the modern Papacy, all are recorded in that historic marble.

In spite of disfigurement, the recent "improvements" have rather accentuated that peculiar quality of the monuments of Rome, that they thus witness to the successive revolutions in human destiny. The antiquarian who excavates in the valley of the Nile, the Seine, or the Mississippi, the geologist who explores in the strata of some estuary, comes upon layer after layer of successive ages, the remains of historic ages, then of pre-historic ages, of the bronze age, of the bone implements, of the flint implements, the neolithic, and the palæolithic age, until he comes to the glacial epoch, and so forth. That is the character of the Roman remains. With us Stonehenge records the Druids and nothing else, the White Tower records the Norman Kings, the Abbey the Plantagenets, St. Paul's the Stuarts, and no more. But at Rome each monument bears visible marks of four, five, or six successive ages over some two thousand years or a yet longer span.

St. Peter has displaced Trajan on his column, as St. Paul has superseded Antoninus. The Mamertine prison was first perhaps an Etruscan waterwork of the early kings, then the state prison of the Republic, the scene of the execution of Jugurtha, and the conspirators of Cataline, of Vercingetorix, and many another captive chief, of Sejanus; then it was believed to be the prison of St. Paul and St. Peter, from whence their last epistles were written, and since then it has become for the Catholic world a centre of pilgrimage, adoration, and miracle. So the churches round the Forum are partly formed of Roman temples and basilicas, one of them being the seat of the Senate. So the Colosseum was built by Titus after the capture of Jerusalem, largely by captive Jews; for three centuries it continued the scene of the most amazing and wonderful spectacles the world ever saw; then it was a fortress of the feudal barons, the refuge or the terror of popes, then the quarry from which cardinals and families of popes built their palaces, then a deserted ruin, then a factory, next a sacred place of pilgrimage, of preaching, and of reverential worship, and now again secularised into a mere antiquarian museum, from which Nature and God have been driven as with a pitchfork. So too, out of one vast hall in the Baths of Diocletian, Michael Angelo constructed for a pope a stately modern church. The columns, the marble floors, the sarcophagi, the fonts, and the pulpits in the older churches have each a long and varied history. A column of Grecian marble is inscribed "From the bed-chamber of the Cæsars." A sculptured coffin first held a

Roman senator, was next converted to the use of a martyred saint, was then cast aside as a worthless bit of stone on a heap of rubbish, and at length appropriated by an æsthetic churchman for his own pompous monument.

There is one feature of Rome which even the rage of "improvement" has spared as yet—the feature which of all others is the most suggestive to the historical mind, the ancient city walls—the whole series of walls, with their towers, gates, ramparts, and barbicans, with the twelve miles of circuit, the fragments of the early kings, the walls of Romulus and of Servius, the walls of Aurelian and of Belisarius and Theodoric, the walls of Pope Leo, of Pope Sixtus, of Urban, of Pio Nono. What a vast procession of events has passed in the sixteen centuries since Aurelian made the circuit that we see! As we stand on those ramparts in the Pincian or in the Medici garden, or beside the Lateran Terrace, or near the grave of Shelley, what visions may we still recall—what victorious armies from east and west, north and south, coming home in triumph under Diocletian and Constantine, Julian and Theodosius, with the eagles glancing in the sun, and the legionaries tramping on in serried ranks; what hordes of northern and southern invaders, Vandals, Goths, Lombards, Franks, Normans, and Saracens, the ever victorious armies of Charles the Great, of the Othos, of the Norman Guiscard; what battles; what sackings and conflagrations; or again, what long processions of pilgrims from all parts of the earth; what bands of monks led by Francis, Dominic, Loyola, and Xavier; what companies of men-at-arms led by Colonnas, Orsinis, Frangipanis, Contis and Crescentii; and then in the sixteenth and seventeenth centuries what clash of arms, what pompous ceremonies, what historic meetings, down to the time of Napoleon and Garibaldi, and Pio Nono and Victor Emmanuel, and the latest breach of all, through which the Italian Kingdom entered and displaced the Pope. These walls and gates, themselves of all ages, bear stamped on them the history of Europe during sixteen centuries. Few edifices of man's hand on this earth have a record so great, and of such central interest.

Of the Catholic memorials of Rome, though the Church has almost disappeared from sight, nothing is destroyed and little is changed. To the Protestant tourist, with his Murray and his Baedeker, now that the public Papal ceremonies have practically ceased, this Catholic world is for the most part a blank. He passes from the Cæsars to Raphael and Michael Angelo, Bernini and Guido, from the Forum to St. Peter's, according to his taste, without a thought of the vast world of history, of legend, of poetry, of art, of religion, that fills up the twelve centuries between the days of Constantine and the days of Leo X. The British tourist is but one out of many. To the tens of thousands of Catholic pilgrims who visit Rome from all part of the world, this city of St. Peter is all in all; ruins and pictures to

them are worldly trifles. To them Christian Rome is everything, and heathen Rome and modern Rome are less than nothing. And to the impartial mind of history, this Christian Rome is a very solid third part—nay, perhaps, a real half of Rome—historic Rome, in its entirety.

But it is a thorny topic to the mere historian, is this Christian Rome; for every corner of its story is encrusted with vague legend, unsupported guesses, usually passing into palpable imposture. Miracle, tradition, superstition, and fraud have got inextricably woven into the texture of each record. As the tourist mocks at the footprints of the Apostles in the Mamertine rock, at the miraculous Bambino of Ara Cœli; so the learned antiquary shakes his head at the sacred image of St. Peter, and at the tomb and cell of St. Cecilia. But the scepticism of tourist and antiquarian are somewhat overdone. There *is* a legendary, perhaps a fraudulent, element in many of the lives and martyrdoms, nay, in most of them. Strict historical criticism can accept no one in its entirety. But there is a vast substructure of fact, most difficult to disentangle, and impossible now to prove. For my part, I would as soon believe that nothing of the Golden House of Nero still exists under the Baths of Titus, that no fragment of *Roma quadrata* remains embedded in the palaces of the Cæsars, as I would believe that the legends of St. Clement and St. Lawrence, of Cecilia and Agnes, of Martina and Bibiana, were mere poetic inventions with no basis of fact. It is for the historical mind a hopeless task to analyse this element of fact; and where superstition has piled up fables, and scepticism retorts with wholesale ridicule, a lifetime would hardly suffice to separate truth and fiction.

Let us, then, be content to grope in the labyrinthine passages and silent vaults of the catacombs, to view the mouldering bones in their narrow cribs, the lamps, and circlets, and fragments of pottery and metal, the rude and smoky frescoes, the inscriptions, the epitaphs, the emblems of the faith; let us descend into the lower churches of St. Clement and St. Agnes and St. Lawrence, St. Cosmas and St. Martina; let us visit the baptistry and cloisters of the Lateran, even the *Scala Santa* and the crypt of St. Peter's; let us ponder over S. Gregorio and its remains of the great Gregory, S. Sabina, with its record of Dominic and Aquinas; let us meditate in the convent gardens of the Esquiline and the Aventine, and feel that we are truly in touch with scenes historically consecrated by some of the greatest souls who have ever dignified humanity, with spots hallowed as some of the turning points in human civilisation, and certainly consecrated by the tears and prayers of believers during eighteen centuries. We neither surrender our critical judgment, nor give way to a ribald scepticism. What parts of this mighty and pathetic pageantry of Christian egend are real, and what parts are pious fiction or unholy fraud, we

cannot tell. Let us forbear to probe further where the task is vain. But this we know: that in that enormous mass of legend, relic, ceremonial, tradition and art, there is a basis of profound reality, and a world of imagery, emotion, sacrifice, such as man's brain and heart have never surpassed.

It is a melancholy reflection how often our critical and sceptical habits make us blind to the true historic significance of such a monument as St. Peter's. The tourist and the student of art decry its rococo saints and extravagant pomposity, the waste of power, the manifest hollowness of its peculiar relics. Put aside antiquarian and æsthetic criticism, and still a marvellous record remains. Grant that the *Cathedra Petri*, the miraculous bronze image and the bones of the apostle, the column at which Christ was scourged, are all pious fictions, there remains still in the very site, in the tombs of the early Leos, of Matilda, the great countess, in the antique Madonnas, in the font, in the crypt and subterranean vaults, in the sacristy and the cemetery of Constantine, in the tomb of Junius Bassus, and in the Navicella of Giotto, above all, in the long annals of that venerated spot from the circus of Nero down to its final consecration by Urban VIII., enough to fill the thirteen centuries between Constantine and the Borgheses.

To visit Rome—which even in the last generation had on most minds a sobering effect, as a visit to a cemetery must have, however beautiful be the spot where the departed sleep—has grown to be of mournful interest to those who remember it of old. There is to them a new meaning in the peasants' song, "Roma, Roma, non è piu com' era prima!" We can see no longer the Salvator Rosa ruins and rocks, the Piranesi colonnades and arches, the quaint old Papal pageantry, and the pensive landscape from garden and terrace. Bits of it remain here and there amidst acres of building speculations and American caravanserais. But for the mere student of antiquity there is ample compensation. And it is perhaps the truth that the deepest interest of Rome still is not in its art, in its Vatican galleries, Sistine frescoes, or dome of St. Peter's, not in its churches, cloisters, relics, and tombs, but in its record of the ancient world. Rome never was a centre of art, even in the days of Raphael, she never was a centre of Christianity, even in the twelfth and the thirteenth century, as she was a centre of civilisation in the ages of Julius, Augustus, Vespasian, and Trajan.

We may still stand on the tower of the Capitol and survey that glorious panorama bounded by Tuscan, Sabine, and Alban hills, and dream what that scene was some seventeen or eighteen hundred years ago. The Forum below was one radiant avenue of temples, triumphal arches, triumphal columns, colossal statues, monuments, and votive shrines—the senate house, the rostra, the sacred way on one side—the circular temple of Vesta, the temple of Castor and the

basilica of Julius on the other ; above, on the right, the temple of Jove, on the left that of Juno, and the towering palaces of the Palatine and the Circus Maximus beyond the valley. Far as the eye can reach would be vast theatres, enormous baths, colossal sepulchres, obelisks, columns, fountains, equestrian statues in marble or in bronze. The walls of these sumptuous edifices are all of dazzling brilliance in Oriental marbles, bright with mosaic and with frescoes, and their roofs are covered with plates of hammered gold. In the far distance, across terraces and gardens shady with the dark foliage of cypress and stone pine, might be seen the aqueducts which bring from the mountains whole rivers into the city, to fill its thousand baths and its hundred fountains. And between the aqueducts and the porticoes, far as the eye can reach to the hills beyond, villas gleam in the sun with their terraces, gardens, statues, and shrines, each a little city in itself.

This earth has never seen before or since so prodigious an accumulation of all that is beautiful and rare. The quarries of the world had been emptied to find precious marbles. Forests of exquisite columns met the gaze, porphyry, purple and green, polished granite, streaked marbles in the hues of a tropical bird, yellow, orange, rosy, and carnation, ten thousand statues, groups and colossi of dazzling Parian or of golden bronze, the work of Greek genius, of myriads of slaves, of unlimited wealth and absolute command. Power so colossal, centralisation so ruthless, luxury so frantic, the world had never seen, and we trust can never see again.

Strangely enough this portentous accumulation of riches and splendour lay open to all comers. The one thing that could not be seen (till the Empire was nearing its close) was a wall, a fortress, a defence of any kind. Rome of the Cæsars was as free from any military look as London to-day. It had neither wall nor citadel nor forts. It was guarded only by a few thousand soldiers and a few thousand police. For four centuries or so it flourished in all its glory. There followed some ten centuries of ruin, waste, desolation, and chaos, until its restoration began—a restoration sometimes that was a new and a worse ruin. The broken fragments only can be seen to-day. Here and there a few mutilated columns, cornices, staircases, and pavements, the foundations of vast temples, theatres, and porticoes, the skeleton of a few buildings too vast to be destroyed, a few half-ruined arches, a number of broken statues in marble, and one complete in bronze, rescued because it was wrongly supposed to be a Christian sovereign. All else is dust and endless tantalising dreams. But that dust draws men to it as no other dust ever can. And he who begins to dream longs to dream again and again.

FREDERIC HARRISON.

AN EXCHANGE FOR GIBRALTAR.

THE contention of the following article is, that the retention of England's hold on the Mediterranean by means of Gibraltar, Malta, Cyprus, and Egypt is not only strategically a mistake, but must, in the event of War, prove a source of weakness to the Empire; it will possibly entail on us the loss of India; it must involve us in all manner of European complications with which we are not concerned; it imperils the safety of our communications with our colonies by scattering our fleets; and for this same reason, renders Great Britain itself more accessible to invasion. It may be said that to state the matter thus is tantamount to declaring that the entire foreign policy which has guided British Statesmen of every shade of politics since the days of George III. has been wrong. But such is not the case. It is rather that all questions of foreign policy are liable to the eternal necessity of adapting themselves to altered conditions. The conditions which obtained in the days of Nelson differed less from those of Lord Palmerston's than do Lord Palmerston's from those of the year of grace 1893.

But it is not within the scope of this article to point out whence this difference has arisen, but merely to endeavour to support the above contention, viz.: that the Mediterranean, as now held by our fleets and armies, is a standing danger to the British Empire.

It is generally conceded that we have no *raison d'être* in the Mediterranean and in Egypt except to secure our route to India in time of War. Given a state of profound peace, and it is perfectly immaterial to England whether the Sultan or the Czar sits on the throne of Constantine; and, also, it is equally immaterial whether Gibraltar and Malta are garrisoned by Spaniards and Italians respectively, or whether the Suez Canal is French or is neutralised. It is only during War that these questions are of importance; therefore we can confine the question to the main issue, which may be narrowed to this point, Can the Suez Canal route to India be utilised in war time? If the answer is that it cannot, why, then, continue to occupy the Mediterranean, through decades of peace, and maintain a costly line of communication which cannot be utilised for its one sole and specific purpose—our route to India in war time?

Now to consider the matter briefly in detail. What is the actual position of Egypt, with the strong national feeling which is being gradually developed under the reign of Abbas, a feeling assiduously exploited by France and Russia? Any European war in which we were involved would of necessity bring us into collision with one of

the Mediterranean Powers, and the international obligation of neutrals would close the Suez Canal against us. Or again suppose it were a war in which we were not actually participants; suppose France and Russia were arrayed against Turkey. What would be the position of Egypt? Should we, who are admittedly only the guests of Turkey in that country, be allowed to remain in it, and thus prevent France and Russia from exercising their undoubted right to invade the territory of their enemy? Or suppose we were at war with Russia alone. The Suez Canal would immediately assume to both belligerents a position analogous to that of Belgium or Switzerland in the late Franco-Prussian War. We should not be permitted to utilise it for the transport of troops. We should have to submit to the ridiculous paradox of seeing the route on which we depend for pouring troops into India at this particular crisis closed to us by the law of international neutrality. But the possible and obvious complications to which our position in the Mediterranean at all times subjects us are too numerous to be entered into here, and it is better to confine the discussion to strictly strategic considerations. To begin with, Gibraltar, *quâ* Gibraltar, is practically and demonstrably useless, whether we retain the Mediterranean and Egypt or whether we abandon them. The distance across the Straits is too wide to make it possible to block the ingress or egress of a hostile fleet. The Rock does not command the entrance to the Mediterranean, a statement which cannot be too emphatically reiterated. Nothing but a very powerful fleet stationed permanently under the guns of the Rock can affect this. And what sized fleet must this be? A fleet at all times equal to any possible combination that may be brought to bear against us, or even a fleet equal to the combined strength of the French Channel and Mediterranean fleets—in other words, the whole naval strength of the second greatest Navy in the world, a Navy kept in home waters, and not, like England's, scattered over the entire globe. Have we such a fleet as this to leave lying idle to act solely as a blockade for the Mediterranean? Most certainly not. Then what happens? The moment our ships are required elsewhere a telegram from Algeciras sets the Brest and Toulon fleets in motion to meet at Gibraltar in a few hours, and to enter or leave the Mediterranean as they please. Moreover, in a short time the French Canal, connecting the waters of the Atlantic and of the Mediterranean, will be complete, and will render Gibraltar still more a dead letter to us, enabling France and her allies to pass from one sea to the other without the slightest let or hindrance from England. It is impossible to overestimate the strategic importance that this Canal will ultimately assume.

Then as to Gibraltar itself, the perfectly legitimate and strongly

national feeling with which Spain beholds our occupation of the Rock is a factor which England would be unwise in ignoring should Spain see her opportunity in our difficulty. It might be the price of her friendship; in which case it would be as effectually lost to us as if it were recaptured by arms; or failing that solution of the question we should have to contemplate a land siege, which, though not likely to be successful, would be extremely harassing and annoying. Furthermore, it is admitted that heavy guns in earthworks on the neck of the peninsula would enfilade the anchorage.

The writer has pointed this out to British officers of the garrison several times, and, it is true, has been met with the smile of superior intelligence, and has been told that our guns, facing that way, could pound to pieces in an hour or two any battery that the Spaniards could erect. But in the Spanish War Office people also sit smiling, and a naval officer of the highest distinction in Spain assured the writer that an entire system of guns and batteries, extending from the second curve of the neutral ground to the coast-line of Algeciras, was pigeon-holed ready for use; that the contracts for the earthworks had been prepared, and that a single week could place guns in position, which, though they might not injure the actual Rock itself, could destroy any fleet lying under its guns. And the writer is of opinion that the Spaniard is not far wrong. So it may be asked what is the actual use of Gibraltar, and can we afford to keep, penned up in its galleries, the garrison, numbering certainly not less than 8,000 to 10,000 men, which would be necessary to defend it from a serious combined attack by land and sea? Nor must the fact be lost sight of that Gibraltar is practically useless for disabled ships. Any damage that could be done to a modern ironclad in a present-day sea fight would be much too serious for repair with the few appliances we possess at that dockyard.

As to Malta. This is undoubtedly one of the strongest fortresses in the world. We have spent vast sums on it, we have made it a place of the utmost importance to us as long as we remain in the Mediterranean. Under its guns and in its magnificent harbours our fleets would always be safe, and the dockyard could probably effect almost any repair. It is one of Nature's great strongholds. In war time it would require from twenty to twenty-five thousand men as a garrison, and as a point in European complications its value cannot be disputed. It alone can prevent the Mediterranean becoming a French lake, and is the real counterpoise to Russian dominance in the Eastern waters of the Mediterranean and the Greek Archipelago. But even with all that admitted the question reverts to the original contention. Are we in the Mediterranean in order to secure the route to India, or are we there in order to have it in our power to

take part in a great European War? The advisability of intervention in such a war is, of course, too wide a question to discuss here, embracing as it does complex commercial problems: but, confining ourselves strictly to the former question, the use of Malta must, of course, be measured by the possibility of our utilising the Suez Canal in war-time. The two are absolutely inseparable: if we give up Malta we say good-bye to the Canal; if we are turned out of Egypt, Malta is merely a waste of strength; the garrison and fleet employed to retain it would be much better employed elsewhere: the former on the plains of Beloochistan, the latter at home in the Channel.

Again the question of the retention of the Mediterranean cannot be disassociated from that of the general strength of the Empire. We must look facts in the face. What might have served us only twenty years ago is totally inadequate now. We have increased our fighting power 50 per cent. in some respects, and 100 per cent. in others. Without obscuring the question by figures it practically amounts to this. France has increased her fighting strength 100 per cent. on sea, and something over 4,000 per cent. on land. Germany's increase is still larger. Russia's is practically immeasurable. The whole world is armed to an extent which makes our fighting power perilously small. The writer, with constant opportunity of observation at Aldershot, has no hesitation in saying that we could not by any conceivable effort put two Army Corps of 20,000 men in the field, probably not even one. The reduplication of authority, the red tape, the endless division of responsibility, the absence of all cohesion, all these things render it practically impossible for England to possess an Army in the European sense of the word. Even the elementary instinct of self-preservation, which is strongly developed in every other nation, seems wanting in us. We hold that it is time enough to prepare when invasion comes, whilst other nations prefer to prepare beforehand. They may be all wrong, but they do it, in spite of a poverty which is beggardom in comparison with England's wealth.

We pass from Malta to Cyprus. As regards this Island, its strategic value naturally depends on the Suez Canal, and is non-existent if we give up Malta. Still, in the event of War, we must either abandon it to an enemy or retain it, for it is believed to be an important position with reference to the Mediterranean exit of the Suez Canal. Therefore we should be compelled to garrison the island, and it can hardly be thought an exaggerated estimate of what that garrison would have to be if we put it at 10,000 men, bringing up the number of our Mediterranean land troops to 40,000 without a single soldier in Egypt.

We now come to the crux of the whole question. The Suez Canal is a mere dry ditch in shifting sand, capable of being destroyed by

two or three pounds of dynamite, and of being blocked effectually by one single ship loaded with iron rails or bricks that might be sunk transversely in its waters. How could we protect its whole length without a cordon of men and outposts, reaching from the Mediterranean to the Red Sea, against such an attempt being made to block it by a patriotic Franco-Egyptian? How could we insure it against this genuine danger if it is open to us and to others at the same time?

But supposing that our garrison in Egypt had been increased to say 50,000 men (an almost impossible effort for England), could it not be turned out by a French invading force, allied with Turkey and Russia, of say 100,000 or 150,000 men? In this case, the Canal and everything afloat on its waters, from one sea to the other, might be destroyed by a few galloping batteries of Horse-Artillery.

But even allowing that nothing of this would happen, and that we could absolutely guarantee Egypt against invasion, and supposing that we could spare a powerful fleet both on the Mediterranean and Red Sea mouths of it (*plus* a garrison as aforesaid), there is yet an enemy that no human strength can fight against, which would render the Canal entirely useless at the very time we should require it. That enemy is the climate. For naturally if we want to send troops *rapidly* to India, it will be under the pressure of a War *thrust suddenly on us*. Will our enemies considerately allow us to select that time of year, and that time only, when it is just possible to send troops down the Red Sea without losing more than half of them by heat-apoplexy? What is the passage of the Red Sea like from May to October? In what condition would the immature lads we should be sending to India arrive, weaklings who even in winter lie gasping for breath on the decks of our comfortable and well-arranged troopships, if they had to pass down this burning furnace packed away like sardines in a box in some hired steamer, with all the intolerable aggravation of want of ventilation and the heat of high-placed boilers? Ask any one with any experience of the horrors of this watery hell for an answer. He will tell you that probably one-tenth of the troops described above would be thrown overboard long before Aden was reached; that another fifty per cent. would land in India scarce able to crawl into hospital (of whom half would die in a week), and that of the remaining forty per cent. about ten, old veterans, might be able to carry their knapsack and rifle, leaving only the officers and these veterans fit to take the field at once. And yet this is a regiment which we expect to hurry into a train on landing in India, and hope to push to the front in Beloochistan, or through the sweltering passes of Afghanistan!

This is a brief outline of the Mediterranean route to India. It is by no means denied that the retention of Gibraltar and Malta might be of immense value if our forces were adequate to the strain

of garrisoning these places, but the argument of this article is based on the fact that England has not a drummer boy or a gunboat to spare from the all-important duties of defending her own shores, her Colonies, and her Indian Empire, and that therefore the more she can concentrate her forces on the points of real attack, and the more she can strengthen her line of communication, the better off will she be. But this is so trite a remark that apologies should be offered for making it; the only excuse being an earnest desire that a matter of such transcendent national importance should be carefully weighed by the British public.

With this difficulty before us, what are the means of escape? Briefly, it is the Cape of Good Hope Route to India.

The Cape route means that England becomes an Oceanic Power. Nature and destiny seem to have marked us out for this; and every development of our Empire seems to point to this fact more clearly. Surrounded by water, our Dependencies can only be reached by water, but the courage of our ancestors has fortunately given us connecting links with these possessions from one end of the world to the other, in every sea, and in every climate. And thus chance, or the love of conquest, or Providence (according to our several views of things sublunary) have created for England the unique position of being practically independent of all other Nations if she abstain from meddling in their affairs.

As an Oceanic Power we are the most powerful Empire in the world, and as our Colonies and India are gradually welded closer and closer to us we stand entirely unrivalled. Non-intervention is not necessarily cowardice—a courageous man can walk home without interfering in every chance street-fight he may come across. So a great nation can stand aloof, though frontiers are being rectified, and dynasties are being rolled in the dust, nor can she lose caste by refusing to identify her interest with this or that petty family intrigue. Far from it; a nation that acts thus stands strong in her might, ready to smite swiftly and surely when oppression and the lust of power lift their heads: she is the true apostle of Peace. And these are not mere phrases.

But to return to the consideration of the Cape Route to India and our Colonies.

The great highway of the Atlantic and the Pacific is our natural, safe, and expeditious route to India and our Colonies. This route, moreover, has the inestimable advantages of being free from all European complications, and of being absolutely healthy. It is open to us at all times and at all seasons, and, instead of being a source of danger to the health of our troops on their way out to India, instead of being a death-trap like the Red Sea, it is the one thing needful to set them up and enable them to disembark fit and ready to take

the field. It is quite true it would take a few days longer than the Red Sea route, but then it must be borne in mind, and cannot be too emphatically repeated, that if we could spare the garrisons of Malta, Gibraltar, Egypt, and Cyprus for frontier duty in India, we should *never require to hurry troops to India*, nor should we ever be in that humiliating position of periodical panic to which we are at present subjected every time some pettifogging Bokharian or treacherous Persian seems to be playing into the hands of Russia. Indeed, the whole import of the Eastern Question, as affecting England, would be altered by the adoption of the Cape route.

Again, one of the most important considerations in connection with the Cape route is that of Convoy. To send a heavy laden trooper through the Mediterranean and by the Red Sea without a powerful convoy would be impossible. The narrowness of the route, the great number of ports and points all along the route where enemies' vessels could lie hidden to pounce out on the unprotected Trooper, would make it madness to attempt it, whereas by the Cape route there is an Ocean to choose from for a route, and, as it would be left to the discretion of each Captain to sail as he liked, it would be impossible for any hostile cruiser to intercept him except by chance.

Let us now consider how and by what means this great change in our strategic position as regards the rest of the world might be effected. Dealing with the points as they have been dealt with above, we first come to Gibraltar.

Gibraltar should be exchanged for the Canary Islands, whose strategic importance to England cannot be too earnestly insisted on. It is no exaggeration to say that the Port of Las Palmas and the facilities afforded by it and the land which surrounds it, are of more importance to England than ten Gibraltars. Impregnable if properly fortified, capable of supporting a garrison of 100,000 men (with the aid of the adjacent islands), possessing the most equable and perfect climate in the world, and situated on the great high road to India and the Colonies, the Canary Group will be demonstrated to be of more use to England in her next great war than the whole of her Mediterranean possessions. As a British Dependency these islands would soon be self-supporting, thanks to a soil whose fertility is the wonder of all those who visit them. On these Islands our raw troops might become thoroughly acclimatised, and would be well on their way to India. Troops stationed there could arrive in India in ten days' less time than they would if starting from England. Moreover, they would save time by gathering up other troops at the Cape: and meanwhile, if the islands were left to themselves, the fortifications which would have been erected on the Isletta (the peninsula projecting into the sea at Grand Canary) would afford ample means

of self-protection and would ensure safe anchorage for vessels coming in to coal or to refit.

There can hardly be a doubt that Spain is quite willing to effect this exchange under the unfortunate administration which prevails in all Spanish dependencies. The Canaries are simply a source of annoyance and expense to the mother country; they are not the object of any national feeling in the hearts of the Spaniards of the mainland, and their inhabitants are looked on with more or less contempt as the descendants of the barbarous races who were found in the islands at the time of the Spanish conquest. To compare the feeling of Spain with regard to the Canaries with that of their genuine and passionate love of Gibraltar is out of the question. It is impossible to meet a Spaniard who has not the national instinct that England is an interloper on her sacred soil. Gibraltar is always and has ever been Spanish. No Frenchman feels more strongly for Alsace and Lorraine. To drive us from Gibraltar is probably the only truly national aspiration which permeates all political parties of Spain alike. The question may appear dormant, but in reality it is very much alive, and it can be safely affirmed that the whole nation would shout with joy on the day they saw the British flag hauled down from the peak of the Rock.

And how should we win by this exchange? We should have removed one standing danger from our European complications, and have strengthened our Oceanic position tenfold. As to Madeira, it might, or might not, be desirable to acquire that island. The Bay of Funchal is a bad anchorage and affords little shelter; with the Canaries to coal at we should be independent of it, but at the same time, as a friendly island on our flank, it might be desirable to acquire it. The inhabitants themselves would welcome us with acclamation, and the Government of Portugal would cede it willingly were England to guarantee a Portuguese loan. Other Portuguese possessions, such as the Cape de Verd Islands, should also be acquired. They are valuable as coaling stations, and their principal port is easy of defence. The cession of a few miles of territory round Goa, much sought after by Portugal, would probably bring about the surrender of these islands.

Next we come to the Cape of Good Hope. Of this colony it is needless to say anything, as we ourselves are in possession, and its capabilities for defence are well known. Suffice it to say that, with the route to India secured by this possession, England's position there should be practically impregnable; but, in order to render it so, large sums would have to be expended in strengthening our fortifications in Simond's Bay, and in creating larger docks and dockyards.

Passing over the other coaling-stations we possess on the East

Coast of Africa, we come to Madagascar. Now, it is an open secret that France has gained nothing but trouble and annoyance by meddling with this Island; at the same time, French *chauvinism* forbids the French Government to withdraw. But it cannot be doubted for a moment that were England to evacuate Egypt on condition that France withdrew her Protectorate from Madagascar, the withdrawal would take place immediately. England should also, at the same time, for ever settle the aggravating question of the Newfoundland Fisheries, and gain possession of the Islands of St. Pierre and Miquelon by barter with France.

But it will be argued that France would at once occupy Egypt. Well, let her; for England would cease to be concerned in what became of Egypt. And in the brief space of a year or two the old bugbear of who should have Constantinople would also have disappeared below the horizon of practical Foreign Politics in England. The Franco-Russian Alliance is one of the impending dangers to the peace of the world. This alliance would vanish into thin air if France attempted to keep Egypt to herself, as she doubtless would. It would be the signal for Russia to pounce on Constantinople; and that France, in her turn, could never tolerate.

But as to England, although it may sound a startling doctrine, it is absolutely immaterial who rules in Constantinople, provided we abandoned the Mediterranean route to India. And for this obvious reason, that, whatever European Power attempts to secure Constantinople for itself, the jealousy of all the Mediterranean Powers may be safely calculated on to keep that Power out of it. Indeed, it is safe to go further, and assert boldly that if Russia had a free hand in Turkey in Europe, our Indian possessions would never be subject to menace. Armenia is worth more than the Pamirs.

As to Madagascar, it may be said that England would obtain a very valuable possession in this Island—the third biggest Island in the world, with a very fertile soil and a population less than that of London. It would open a field, not only for stationing and acclimatizing troops, but also for most successful colonisation. And though this may be considered in the light of legislating for posterity, yet we who leave children behind cannot avoid looking forward to the not very remote date when they will be still more crowded out than we are ourselves, and with many of us the pressure is already practically insupportable.

As regards the effect these proposed changes and exchanges might have on England's international obligations, it may be said that with altered conditions these would be so materially modified as either to cease to exist or to assume an aspect that can only be matter for abstract speculation. But, under any circumstances, we could not be affected for the worse. Our existing arrangements

involve us in all kinds of complications. Our position as to France is, and always will be, one of extreme tension as long as we remain in Egypt. Apart from strategic questions, France views our occupation of Egypt with deadly animosity, a feeling which any political adventurer aspiring to popularity with his countrymen could fan into the white heat of actual warfare. For some inscrutable reason France thinks she, and she alone, should occupy the throne of the Pharaohs. And really one does not see why she should not, as far as England is concerned. Again, in what complications might we not be involved with Italy, and Austria, and Turkey! And are they not, one and all, of our own making?

At present an armed peace broods over the millions of Europe. It is the psychological moment for England to act. Should England wait until war bursts forth? No; it would then be too late, and in the din of arms it would be impossible to carry out what is perfectly feasible in peace time, and it would certainly be a contemptible policy. By staying where we are in peace time we are giving a practical guarantee to more than one nation that under certain eventualities we should come to their assistance—this is notable in the case of Italy and Turkey. It would be the very hardihood of cowardice to desert them in the time of their need, as we now stand towards them. England could not do it. But supposing that we were capable of this cynical meanness, how different would be the conditions under which we should begin to adopt our new route! We should not have a single strong place between us and our Colonies and India, except the Cape. Moreover, as things are now, we could negotiate wisely for these concessions. Who would pay us the highest price for Malta—Italy or France? What would France give us for our millions in the Suez Canal? And there is another very important aspect of this question. The growing democracy of England is as yet only in the "first standard" as regards foreign politics. Let them feel the pinch of the want of corn. Give these totally untaxed people one brief experience of paying direct taxes. Should we see mobs shouting in Trafalgar Square for the retention of Gibraltar, and crowds in Hyde Park furiously demanding that we should interfere in the affairs of Armenia? On the contrary, *they will discover that the route to India dominates all our foreign politics.* They will grasp the fact that in peace time all nations alike can use the Suez Canal for trading purposes, and they will learn practically that not one single P. & O. Steamer or Orient Liner, or any other of our great fleets of Mediterranean steamers will dream of using it in war time. They will see, too, that we shall have to fight inch by inch in order to get troops to India and the Colonies by that route, and they will learn that we who were supposed to know shut our eyes in peace time to the only possible solution of the question.

Of course, the opponents of this view will answer that England will have swept the Mediterranean clear of all foes on the first sign of War, and have definitely seized Egypt. But it is not so absolutely certain that we could do this in view of the many possible combinations that might confront us. What is to prevent France, Russia, and Turkey from attacking us? Or France and Italy, or France and Spain, or all of them together? Such things have happened, and are always on the cards. It is mere folly not to measure our strength by these combinations. Are we strong enough, in the Mediterranean, in the Pacific, in Australia, in Canada, China, and India, briefly, over the whole world—to meet any one of these combinations?

Adopt on the other hand the Cape route to India and the entire position is reversed. Our magnificent Mediterranean Fleet is released for duty elsewhere, our 30,000 or 40,000 troops (more likely 100,000 if we were to hold Egypt) are available for the defence of our shores and for our Indian frontier. Thus should we wash our hands once and for all of all European complications. But the question will be asked, Would England permit herself to be thus practically effaced from the European concert of nations, would she not be abdicating her position as a Great Power? The answer is that, in the first place, the aforesaid growing Democracy, our masters, are perfectly indifferent to dynasties and see no special advantage in the outpouring of blood and treasure to keep them where they are; and secondly, that whatever tends to concentrate the strength of an Empire enhances the respect in which it is held by other nations.

The common-sense of England is never so plainly shown as in matters affecting the pockets of the people. The Minister who could show that he had released our fleets and armies from the general police duties of Europe, that he had saved millions which are annually expended on useless fortresses; on distant and troublesome embassies; and all the thousand and one expenses which we now voluntarily take on ourselves, would be acclaimed as the greatest Statesman since the days of Pitt. This is not a policy of scuttle, unless it is scuttling to mind one's own business.

Then, again, as to the feeling in our Colonies. Any one conversant with these rapidly developing Sovereign States is aware that they would certainly not follow England were she to embark in some Quixotic enterprise which may have grown out of a great Canal swindle or may have been brought about by attempting to keep some tottering dynasty on its throne. Except for some great principle of right or wrong, intimately connected with commercial interests as represented by Imperial supremacy, the Colonies would not follow England in a War.

But perhaps it will be asked, Why should we not retain both routes to India, why should we abandon the one because we adopt

the other? The answer is simple enough. In the first place we have neither the Military or Naval force to protect both routes adequately, and secondly it is only by surrendering our strong places in the Mediterranean and by the evacuation of Egypt that we could negotiate those exchanges which have been suggested above.

Enough, however, has been said to indicate the main outline of the policy here recommended. It is true it is a selfish policy, but we have yet to discover any foreign policy which is not based upon self-preservation as the sole and ultimate motive when stripped of cant. Philanthropy is a fine thing, but self-preservation is better.

In conclusion, there is one, and that by no means the least, important factor in England's foreign politics that must be considered. This is, the growing naval strength of the United States. The day is not far off when the Navy on the west side of the Atlantic will begin to feel its strength. It would be invidious to say who may be the object of its attacks; but they are not to be discounted beforehand by either ignoring them or laughing at them.

It is impossible to predict the effect of Home Rule for Ireland on American feeling, if, as seems not unlikely, it leads to bloodshed. To be cut off from our food supplies both in Russia and the United States at the same time would bring about a state of affairs that would possibly ruin us in a few weeks. With our Cape route secured, we should still be able to draw food supplies from India and our Colonies in safety. With the Red Sea and the Mediterranean as our route, where should we be? The answer is not far to seek, for a starving nation cannot fight.

J. W. Gambier.

THE VETO BILL FROM THE TRADE POINT OF VIEW.

Sir William Harcourt omits from his Liquor Traffic (Local Control) Bill the usual preamble setting forth the objects aimed at or the evils to be remedied, and herein shows himself to be somewhat wiser and somewhat less courageous than Sir Wilfrid Lawson, who prefaces the operative clauses of his Liquor Traffic Local Veto (England) Bill with an elaborate declaration of the evil consequences of the drink trade which the veto is to abolish. Sir Wilfrid Lawson's preamble sets out that "the common sale of intoxicating liquors is a fruitful source of crime, immorality, pauperism, disease, and premature death, whereby not only the individuals who give way to drinking are plunged into misery, but grievous wrong is done to the persons and property of her Majesty's subjects at large, and the public rates and taxes are greatly augmented," and goes on to declare that "it is right and expedient to confer upon voters in boroughs, wards, and districts, the power to prevent such common sale of intoxicating liquor." A preamble such as this has its advantages and its disadvantages, but the former greatly outweigh the latter and consist in the formation of a correct public opinion, inasmuch as a preamble affords materials for an estimate of the intentions of the promoters of a measure, and a judgment as to how far the measure is likely to give effect to those intentions; whilst the disadvantages rest almost solely upon the shoulders of the author of a bill, since the preamble often provides his opponents with a convenient basis of attack. Sir William Harcourt seeks to avoid this personal disadvantage by omitting the preamble, and thus leaves us in considerable doubt as to his precise aims, so far as those aims are to be gathered from the Bill itself. The omission may, however, be in some measure supplied, and the materials for an estimate of the ends aimed at may be found by consulting the right honourable gentleman's speech on the introduction of the Bill. And I hope to be able to show, in the course of this article, that the discovery of his intention is essential to a proper judgment of the Veto Bill itself.

In his introductory speech, Sir William Harcourt says: "In many questions which are brought before the House it is considered necessary to make a demonstration of the evils that you require to remedy. That demonstration in this case is altogether superfluous." Now this assumption of a verdict of guilty against the liquor trade, without the production of a scintilla of evidence, this monstrously unjust declaration that the guilt is so self-evident as to render

proof of any kind superfluous, is one against which I, and all connected with the trade, protest most strongly. We are prepared to rebut any evidence that can be brought against us; we can prove that a great deal of it is perjured evidence, and that such portion as is truthful is stretched so as to cover false inferences and unjust conclusions; we are ready to meet assertions with facts. But we are not, and cannot possibly be, prepared for the summary methods of Judge Lynch, under which our guilt is assumed, and sentence of death is passed as a mere matter of form.

But though he declines to make a demonstration of the evils which he assumes to flow from the sale of intoxicating liquors in licensed houses, the Chancellor of the Exchequer condescends to mention, in his own peculiar way, two of the chief evils, namely, poverty and crime. "We are anxious," he declares, "for the poverty of great masses of the people of this country, but who is there in this House, or out of this House, who does not know what is the mainspring and the source of that poverty? Who does not know that it is in drink that is to be found the *causa causans* of that misery?" These appeals to universal experience are a well-known expedient in matters controversial when proof is asked for and is not forthcoming, and they are not usually regarded as convincing. "Everybody knows it to be so," is a phrase which may fairly be translated into, "I believe it to be so, but have no proof." But since Sir William Harcourt puts his questions in such a comprehensive way, I may perhaps be permitted to say, without laying myself open to a charge of presumption, that I, personally, am so far from knowing that drink is "the mainspring and the source" of poverty, that I altogether deny the truth of the allegation, and challenge Sir William Harcourt and all whom it may concern to substantiate it with anything worthy of the name of trustworthy evidence. If the statement were true in any substantial sense, we should necessarily find that the greater the consumption of alcohol, the greater would be the depth and extent of poverty. In other words, it would follow, beyond all question, that the greater the flow from the mainspring and the source, the greater would be the volume of the consequent stream. But this is precisely what we do not find, and what, as a matter of fact, does not follow. Indeed, the official returns relating to the consumption of alcohol and the amount of pauperism prove that the very contrary is the truth, and that it has almost invariably happened, during the last thirty or forty years at any rate, that an increase in the consumption of alcohol has been accompanied by a decrease in the amount of contemporary pauperism, and that decreases in the said consumption have been co-incident with increases in the amount of destitution.

Sir William Harcourt deals in a precisely similar way with the allegation that crime is a resultant of drink, and his allegation is

disproved by precisely the same set of considerations. He says:—"Crime, though it is largely diminished, happily, in this country, is still a great blot upon our social system, and he who knows anything of the matter knows this, that of all the sources and causes of crime, the most fertile is to be found in drink." Here, again, a worthless appeal to indefinite experience is made to take the place of evidence, and here again also the actual evidence of the official returns shows that what may be called the drinking years, the years when the consumption of alcohol reached its highest point, were the very years when crime was at its lowest, and that in what may be called the sober years, when the consumption of drink was at its lowest ebb, crime was most abundant. For instance, in the year 1862, I find that the consumption of alcohol reached the lowest point it has touched during the last thirty-three years, the average being—taking into consideration the total consumption of wine, spirits, and beer—3·95 gallons of proof spirit per head of population. In that year there was also the highest criminal record, 21,851 convictions on indictment, and the highest return of paupers, 1,142,624. Here we find the lowest ebb tide of drink coincident with the highest flood tide of crime and pauperism. Conversely, in the year 1876, we find the highest consumption of alcohol in the period mentioned, or an average of 5·65 gallons of proof spirit per head of population; whilst in the same year there was the lowest record of crime, 16,589 convictions on indictment, and the lowest return of paupers, namely, 728,350. Here we have the highest flood tide of drink coincident with the lowest ebb tide of crime and pauperism.

These facts of themselves disprove the allegations which Sir William Harcourt levels against the trade in intoxicants, but there is another important consideration which must be taken into account in forming a judgment upon the relations of drink and crime. Not many generations back we might have been described with truth as a nation of drunkards. No class in the country considered drunkenness as disgraceful, and most classes indulged in excessive drinking as a nightly habit. But were we, as a consequence, a nation of criminals? Were those peers whose orgies gave rise to the still-surviving phrase, "As drunk as a lord," addicted to criminal practices to an extent which distinguishes them from their descendants to-day? The hard-drinking squires and farmers of fifty years ago may have been something more rough, perhaps more brutal, than would suit latter-day tastes, but was it ever alleged against them that their drinking habits turned them into pickpockets, or forgers, or murderers? In those days it would have been a palpable absurdity to speak of a relationship of cause and effect between drink and crime, since everybody drank, and only a small proportion were criminals. To-day the conditions have altered materially. The

higher, the stronger, the more intelligent classes no longer drink to excess, and, as a general rule, the vice of drunkenness is left as the melancholy possession of the lower, the weaker, and the less intelligent classes, or, in other words, the classes from which the bulk of our criminals—and, I may add, our paupers—naturally spring. There has thus been brought about a purely coincidental relationship between drink and crime. The area of drunkenness has been narrowed down by educational and other similar forces to the region in which crime and poverty find their natural habitat, and we therefore very frequently find a man to be both poor and drunken, or drunken and criminal. But this is not because drink is the cause of either the poverty or the crime, but because the drunkenness and the crime and the poverty are each and all of them the effects of the ignorance and weakness — and often of the wretchedness — of their victims.

In face of these considerations, to speak of poverty and crime as the results of the consumption of alcohol is to betray not only an unphilosophical habit of mind, but an ignorance or a prejudice which is inexcusable in a professed leader of the people.

I have dealt with these allegations at some length for two reasons —first, because they constitute the foundation upon which all attacks on the liquor trade are based; and, secondly, because I desire to protest most energetically and earnestly against the growing habit of accepting their truth without question, or of asserting, as Sir William Harcourt asserts, that "demonstration in this case is altogether superfluous." I claim that, before the sentence which Sir William Harcourt has prepared against those engaged in the liquor trade is finally passed, an indictment shall be found against us and proved in a regular and ordinary way. Up to the present this has not been done, it has not even been attempted; and, until it is done, I and all who think with me will continue to fight, with all our strength and energy, against what we hold to be plain confiscation of our property.

Turning now from these preliminary but essential considerations to the Veto Bill itself, the question naturally arises, Why has the present apparently inopportune moment been chosen for its introduction? If the necessity for interfering with the present licensing system arises, as we are told it does arise, from the existence of crime and poverty in our midst, it might naturally be expected that the present energetic thumping of the "temperance" drum would be justified by some sort of proof that crime and poverty are on the increase. It is certainly unusual to choose as the time for making an unprecedentedly bitter and rancorous attack upon an institution the precise moment when the evils which are alleged against it, and by which the attack is sought to be justified, have reached a lower

level than was ever before recorded, and are nearing the point which, for the present, at any rate, must be regarded as their irreducible minimum. Yet this is certainly the case in the present instance. Crime and poverty were never lower than they are to-day, and they are decreasing rapidly. Why, then, this fierce attack upon the licensing system at the present moment? The answer is twofold. In the first place, as Lord Burton phrased it the other day at the annual dinner of the Licensed Victuallers' Central Society of London, the Government seeks to secure a temporary advantage upon the political chess-board; and, in the second place, it is actuated by a spirit of revenge against the whole body of licensed victuallers for the stand they made in defence of their own interests at the last General Election. It was by no wish of their own that the licensed victuallers found themselves in a position of hostility to the Government on that occasion. Their one earnest desire was to adopt a position of neutrality. Attacked on all sides by proposals and threats which struck at their existence, they adopted the motto, "Our Trade our Politics," and loyally carried out the policy which that motto covers. A series of questions was submitted to every Parliamentary candidate, and strictly according to the tenor of the replies—which were considered before the names of the candidates were divulged—was the support of the trade accorded or withheld. It happened in the great majority of cases that the support went to Conservative or Liberal Unionist candidates, but this was solely because these gentlemen were more favourable to the trade than their opponents, and not because the licensed victuallers wished it to be so. The fact, however, that the trade vote went practically solid against the Gladstonians filled that party with revengeful feelings, which it is now sought to gratify at the earliest moment without any regard for considerations of justice or fair play.

But in this connection let me give one word of warning. Whatever strength the trade possessed at the last General Election will be found multiplied at the next. Sir William Harcourt's Bill has had the effect of welding the whole trade—wholesale and retail—into one homogeneous body, and of substituting for that apathy which has long been our reproach an enthusiasm which is prepared to go all lengths permitted by the law and to make all sacrifices demanded by the occasion, in defence of our property and our homes. The calculation that the temperance vote will be found stronger than the trade vote at the next appeal to the people is, I honestly believe, based on error and will bring defeat upon those who rely upon it. I am firmly convinced that, if the Government continue to court the support of the temperance people by attacking the licensed victuallers, they will find that they have allied themselves with the army of small battalions at the cost of alienating the big ones. In other

words, if they force this Veto Bill to an issue, they will very seriously imperil their continued existence. If, on the other hand, they revert to a position of neutrality, the trade is prepared, nay anxious, to follow suit.

The central principle underlying the Liquor Traffic (Local Control) Bill—a *plebiscitum ad hoc*, that is to say—is one against which many general considerations may be urged. It is not only an uncalled-for innovation upon our constitution, but it is subversive of the great principle of representative government upon which that constitution is founded. The House of Commons is a purely representative body, and so are all our great local authorities, our Town and County Councils, our Boards of Guardians, and our School Boards. So, too, are the most influential of our voluntary associations, such as the Trades Union Congress, the Central Chambers of Commerce and of Agriculture, and the various Trades Councils scattered throughout the country. It will be seen how this principle of government by representation goes sheer down to the roots of our national life: and yet, before the Veto can be adopted, and precisely to the extent it is adopted, this principle, and all that it involves, must be swept away. Surely those who ask this sacrifice at our hands ought to be called upon to make out a much stronger case than has yet been disclosed before their wishes are granted.

Other general considerations against the Veto are to be found in the facility with which it lends itself to fraud, and to a jerry-mandering of the constituencies; in the fact that it would add yet another to the already over-numerous electoral contests by which the course of business is disturbed; that this new form of contest would engender more heat and passion, and consequently be productive of more serious mischief and inconvenience than any with which we are at present acquainted; and that, once the principle was conceded, it would, in the long run, be found practically impossible to confine its operation to the liquor trade, or, in the words of the Report of the Lords' Committee on Intemperance, to prevent its application "to the prohibition of unpopular places of religious or political resort, as well as to obnoxious occupations."

Furthermore, the Bill would in a very special way strike at the liberties and convenience of the poorer classes whilst leaving the well-to-do entirely untouched. The working-man who found himself thirsty in a Veto district would, unless he were wealthy enough to purchase a meal as well as a glass of beer, have to remain thirsty, so far as the possibility of obtaining alcoholic refreshment was concerned, whereas the well-to-do would be able to obtain as much alcohol as they desired, either from their own or their club cellars, or, if they went further afield, at the hotels and railway refreshment-rooms, which are considerately safeguarded from attack for their special convenience.

But it is not my present purpose to dwell upon these general objections to Sir William Harcourt's Bill, strong though the temptation is to do so. My chief desire is to insist upon those particular objections which we, as representatives of the liquor industry, have to urge. We object, then, to this Veto principle because, in the first place, it would most certainly result in the stifling of any genuine expression of public opinion, and in according a preponderant voice to a mere handful of energetic and enthusiastic teetotalers.

Let me put this contention more clearly by going somewhat into detail. The supporters of the Veto are fond of speaking of it as a direct appeal to the people. But it is nothing of the kind; it is an appeal only to an extremely limited section of the people. No one would have a voice, under Sir William Harcourt's Bill, in a local Veto contest, except "local government electors," a phrase which includes women and excludes lodgers. According to Mr. Mulhall, the whole electorate, parliamentary and municipal, only amounts to fifteen per cent. of the population, and he calculates that less than twelve per cent. of the population ordinarily take the trouble to vote in a parliamentary election. A still smaller proportion usually vote at other than parliamentary elections, and general experience proves that in contests under the Borough Funds Act or the Free Libraries Act—the only Acts which give any kind of direct appeal to the ratepayers—not more than one-tenth of the electors, or a mere one and a half per cent. of the population, can be got to record their votes. Assuming that this proportion would hold good in the proposed extension of the principle of direct appeal, the result would be that, since a two-thirds majority of those actually voting would be able to carry the Veto under the Government Bill, one-fifteenth of the electors—that is, two-thirds of one-tenth, or one per cent. of the population, that is, two-thirds of one and a half per cent.—would be in a position to say to the remainder, that is, ninety-nine hundredths of the nation, "You shall drink, not what you want, but what we think is good for you; you shall act, in a matter which intimately concerns your daily life, not as you desire to act, but as we think you ought to act." We may easily grant that in a Veto contest a much larger proportion of the electors would go to the poll than is the case under the existing systems of direct appeal, and yet be able to say that the power of deciding the issue would remain in the hands of a very small proportion of the electorate, and of a quite microscopical portion of the people at large.[1]

(1) This has certainly proved the case elsewhere under social conditions almost identical with our own, as any of my readers may find by consulting a Parliamentary Blue Book, C. 6,276 (1891), on "The Present Working of the Liquor Laws in the Australian Colonies and New Zealand."

Now we may be quite sure that in a Veto contest the teetotalers would poll their last man. To them the issue would be one of supreme importance, and they would not only vote solidly themselves but bring all available pressure to bear upon everyone who came within the sphere of their influence. On the one side we should have the highest possible poll which extreme energy, fanatical enthusiasm and splendid organisation could command. On the other side, whole troops of voters conscientiously opposed to the Veto would not take the trouble to poll. The well-to-do people whom the Veto would not affect would not bestir themselves at all, however much opposed to it in principle. Another numerous body of abstainers from the poll would be found amongst those people to whom Lord Bramwell referred when he said, "There are some opinions entertained as honestly, as strongly, and after as much thought, as the opinions to the contrary; but which, nevertheless, are put forth in an apologetic way, as though those who hold them were doing wrong and knew it, or at least doing something they were not sure about." The great mass of people, who have not taken the trouble to think the matter out at all, would also be amongst the indifferents, unless, indeed, it happened that they were completely misled by the impudent assumption of exclusive virtue and respectability which has long been characteristic of the average teetotaler.

When we know beforehand that so many and such large classes of people would not vote at all in a Veto contest and that the teetotalers would bring the last possible man to the scratch, we may well be excused for fearing that our opponents would be able to snatch the requisite majority of actually voting electors in many districts in which the real opinion of the electorate would be overwhelmingly against them. We have no fear but that after a short experience of prohibition these districts would reject it very emphatically, but meanwhile all the vetoed licensed victuallers would have been ruined. If the Government adopted the suggestion of Mr. Morley, that the proportion necessary to carry the Veto should be two-thirds or three-fourths of those entitled to vote, there would be little danger to be feared. But the teetotalers will never consent to this, as their chief reliance for a majority is upon the abstentions, which we all foresee, and which they calculate upon being able to ensure by the exercise of that moral terrorism which is always at the disposal of the "unco' guid."

Our great and main objection to the Veto proposal is based on these considerations. We do not fear the teetotalers one bit in a fair stand-up Parliamentary fight; but we do fear them when they are cunningly endowed with so many artificial advantages.

I will not deal at any length with the denial of compensation to

the vetoed licensed victuallers which Sir William Harcourt seems to contemplate, because I do not believe for one moment that the English people will ever countenance such a piece of barefaced robbery. Sir William Harcourt says a publican has no vested interest in his licence beyond a twelve-months' tenure, and has therefore no claim to compensation. And he appeals to the Sharpe *v.* Wakefield case as proof of the truth of that assertion. But that judgment affords no such proof. It only goes to the extent of affirming that the magistrates have the right of refusing to renew the licence of a house which, in the exercise of a judicial discretion, they consider to be remote from police supervision, or not needed by the inhabitants of the neighbourhood. In giving his judgment, Lord Chancellor Halsbury explained that "discretion means, when it is said that something is to be done within the discretion of the authorities, that that something is to be done according to the rules of reason and justice, not private opinion, according to law and not humour. It is not to be arbitrary and fanciful, but regular and legal, and it must be exercised within the limits to which an honest man, competent to the discharge of his office, ought to confine himself." Lord Bramwell added: "The Legislature has clearly shown that it supposed and contemplated, that licences would usually be renewed; that the taking away of a man's livelihood would not be practised cruelly or wantonly." When temperance people talk about the Sharpe *v.* Wakefield judgment, they usually overlook these and similar utterances, which make it abundantly evident that magistrates are not entitled to refuse renewals on the ground of any general opinion they may entertain, and that their plain duty is to act in accordance with the intention of the Legislature that licences should be renewed unless good reason can be shown for their refusal. Sir W. Harcourt's attempt to give a universal interpretation to such a strictly limited judgment as that of Sharpe *v.* Wakefield, only proves how completely he has in this matter surrendered his own judgment to the keeping of the baser sort of teetotalers.

But the failure of Sir William Harcourt's appeal to the recorded decisions of the law courts does not end here. Over and over again, since the Sharpe *v.* Wakefield judgment was delivered, has the issue been legally raised whether a publican has a vested interest in his licence when it has been proposed to take his house compulsorily for public purposes; and on every occasion it has been decided that compensation must be paid, not on the basis of what the premises would let for if used for ordinary business purposes, not on the basis of what they would fetch if the value of the licence were estimated on a year's tenure, but on the basis of their annual value the licence being regarded as a fixed and permanent appanage. In other words, since the delivery of the Sharpe *v* Wakefield judgment the law has

repeatedly affirmed that a publican does possess a vested interest in his licence.

When the Chancellor of the Exchequer frames his estimates for the ensuing year he always assumes, as Sir William Harcourt himself did the other day, that existing licences will be renewed, and that his income from the trade—nearly two-fifths of our total national revenue—will remain unaffected. When a publican dies, the valuation of his estate for purposes of probate duty is always based on the calculation that the licence is a permanency. Practical men, whose business it is to lend money upon mortgage, always act upon a similar assumption. Finally, as a matter of fact, licences usually are renewed, indeed I may say are almost invariably renewed, unless there is some strong and special reason why they should not be. Under all these circumstances it cannot be denied that a publican has a reasonable right to expect a renewal, and this right of expectation is a valuable property which has always commanded a high price in the open market. To deprive him of this property by Act of Parliament is to give him as fair and strong a claim to compensation as the House of Commons has ever had to consider.

Parliament compensated the West Indian slave-owners, who had no claim; it compensated the proctors, to whom no harm was done, since their opportunities of practice were really extended by the Probate Act; it compensated the army officers who, in flagrant defiance of express enactments, had paid over regulation prices for their commissions. To refuse now to compensate the licensed victuallers when it is proposed to deprive them of their homes and means of livelihood would be, not only to depart from all precedent, but to commit a monstrous injustice which would reflect dishonour and disgrace upon the whole country.

It is not necessary to discuss the minor clauses of the Bill, since the fight will centre round the Veto and the denial of compensation. The provisions relating to Sunday closing are, of course, highly objectionable, and, if they had stood alone, would have been most energetically opposed, but, as matters stand, they are overshadowed by the still more objectionable proposals mentioned. The three years' notice to quit is a mere sham, since, in practical operation, it would only mean one year's notice, and, at the best, would be of no value to the licensed victualler. The proposal that, once they have succeeded in imposing prohibition, the Vetoists shall not be ousted except by an adverse majority of two-thirds has a specious appearance of fairness at the first glance, as it seems to put the Vetoists and their opponents on terms of equality; but in reality it is an absurdly unjust denial of liberty. It is one thing to require a two-thirds majority before men are deprived of their liberties, but it is

quite a different thing to require a similar majority before they can recover their liberties.

I have now dealt with the principal objections which the licensed victuallers take to the Bill as it affects themselves, and, as I have already remarked, it is no part of my task to emphasise the more general objections which may be urged on behalf of the community at large. Suffice it to say further that it would dislocate an industry employing two million people; that it would throw out of cultivation many thousands of acres of land now devoted to the growth of barley and hops for brewing and distilling purposes; that it would be imposed upon the nation by the Irish vote just at the moment when vast constitutional changes are being proposed which will deprive Irish representatives of the right to interfere in purely British affairs; that it will harass the moderate drinker without affecting the drunkards; and, finally, that the whole of the mischief which it will undoubtedly cause will be unredeemed by a trace of counterbalancing good. For the Veto is foredoomed to failure, so far as it aims at a reduction of drunkenness and of those evils which are alleged against the drinking habit. Sir William Harcourt admits that the Government are "navigating an ocean which is covered by many wrecks"; and it is as certain as anything can be that, if ever they succeed in launching this wretched Veto Bill, they will only have prepared the way for adding another of these wrecks to that long and ghastly list of disasters which constitutes the history of Parliamentary attempts to repress drunkenness by harassing the liquor industry.

CHARLES WALKER.

A JESUIT DOCTRINE OF OBEDIENCE.

In the sixth volume of my *Renaissance in Italy*, p. 282, treating of the Vow of Obedience as conceived by the founders of the Society of Jesus, I printed these words: "A sin, whether venial or mortal, must be committed, if it is commanded by the Superior in the name of our Lord Jesus Christ, or in virtue of obedience." The passage upon which I relied for this assertion was *Constitutiones, Sexta Pars, Caput* v. I will transcribe the text in full, premising that the italics are my own.[1]

"Cum exoptet Societas universas suas Constitutiones, Declarationes, ac vivendi ordinem, omnino juxta nostrum Institutum, nihil in ulla re declinando, observari; optet etiam nihilominus suos omnes securos esse vel certe adjuvari, ne in laqueum ullius peccati, quod ea vi Constitutionum hujus modi aut Ordinationum proveniat, incidant; visum est nobis in Domino, excepto expresso voto, quo Societas Summo Pontifici, pro tempore existenti, tenetur, ac tribus aliis essentialibus Paupertatis, Castitatis, et Obedientiæ, *nullas Constitutiones, Declarationes, vel ordinem ullum vivendi, posse obligationem ad peccatum mortale vel veniale inducere; nisi Superior ea in Nomine Domini Nostri JESU Christi, vel in virtute obedientiæ juberet:* quod in rebus, vel personis illis, in quibus judicabitur, quod ad particulare unius cujusque, vel ad universale bonum multum conveniet, fieri poterit: et loco timoris offensæ, succedat amor et desiderium omnis perfectionis; et ut major gloria et laus Christi Creatoris ac Domini Nostri consequatur."

This statute I interpreted to the following effect:—

"Since the Society desires that all its Constitutions, Declarations, and Order of life should be in every particular observed without any deviation, according to the Institute; and yet is nevertheless desirous to safeguard or at all events to aid its members against falling into the snare of any sin, which might accrue from the force of such Constitutions and Ordinations: it has seemed good to us in the Lord, that with the exception of the express vow whereby the Society is bound to the Supreme Pontiff for the time being, and of the other essential vows of Poverty, Chastity, and Obedience, *no Constitutions, Declarations, or any Order of life can carry the obligation to mortal or venial sin; unless the Superior should command these acts*

(1) *Institutum S. J. Avignon*, 1827. *Constitutiones*, p. 239.

in the name of our Lord Jesus Christ, or in virtue of Obedience: which command may be given in the case of things or persons, with regard whereunto it shall be judged of much importance to the particular or general good: and instead of the fear of offence, love, and the desire of all perfection may ensue; and to the end that the greater glory and praise of Christ our Maker and Lord may be attained."

In fact, I gathered from this article that the Constitutions and Rules of the Society would not bind its members to the commission of mortal or venial sin, unless acts of that nature were expressly commanded by the superior under an appeal to the supreme virtue of Obedience; such a command and such an appeal being matters of possibility in certain circumstances, when the welfare of the Society urgently demanded some extraordinary measure.

The words italicised appeared to have no other meaning than that which I attached to them; and I was confirmed in my opinion by finding that Professor Martin Philippson, in his excellent work, *La Contre-Révolution Religieuse au XVIme Siècle* (pp. 123, 124 and note), took the same view.

Such open avowal of Machiavellian cynicism seemed, however, inconsistent with the character of an Order whose worst enemies have accused it rather of guile and plausibility than of naked and unmasked audacity. In the language of Ranke, I "could scarcely trust my eyes" when I read the chapter and noted down its substance. Indeed, had I not been forced by circumstances to correct the proofs of my book at a distance from libraries, I should probably have found reason to modify this portion of my text before sending it to press. To begin with, the interpretation I put upon *Const.* vi. 5, is in contradiction with other clauses of the Constitutions. I will cite *Pars* i. 1, 23: "*Voluntatem ac judicium suum cum eo, quod Superior vult et sentit, in omnibus rebus* (*ubi peccatum non cerneretur*) *omnino conformantes:*" and again, *Pars* vi. 1 1 c: "*Omnem sententiam ac judicium nostrum contrarium cæca quidem Obedientia abnegando; et id quidem in omnibus, quæ a Superiore disponuntur, ubi definiri non possit* (*quemadmodum dictum est*[1]) *aliquod peccati genus intercedere.*" The celebrated *Epistola de Virtute Obedientiæ*, written by S. Ignatius Loyola to the Portuguese brethren, which contains the essence of his fundamental doctrine of Obedience, may also be compared: *omnibus in rebus, quæ cum peccato manifesto conjunctæ non sunt.*

It has since been pointed out to me that *Const.* vi. 5 was framed in order to establish a distinction between (1) "the express vow by which the Society is bound to the Sovereign Pontiff for the time

(1) Declar. B.

being, together with the three essential vows of Poverty, Chastity, and Obedience," and (2) other "Constitutions, Declarations, and Rule of Life" laid down for the regulation of the Order. The former group of vows could not be infringed by any member without his incurring sin. Non-observance of the latter group did not carry of necessity the penalty of sin, except in cases where the Superior judged it beneficial to attach that penalty to them for a temporary purpose. According to this interpretation the words *obligationem ad peccatum mortale vel veniale* must be taken as equivalent to *obligationem sub peccato mortali vel veniali*, while *ea*, instead of being referred to "*peccatum mortale vel veniale*," as grammar demands, must be referred to "*Constitutiones vel ordinem ullum vivendi, considered as in special cases carrying the penalty of sin for those who do not observe them.*" The whole of that meaning has to be extracted from *ea*. Were we dealing with a Latin MS. of the eleventh century, instead of with the statutes of a flourishing and learned society, I should be inclined to suggest the emendation *eam*, which word could at least be grammatically and logically referred to *obligationem*.

Through the courtesy of an English father S. J., I have been furnished with a translation of the chapter in question, which I will quote as authoritative on the subject. It runs as follows[1]:—

"Since the Society wishes that all its Constitutions, Declarations, and Orders of Life should be freely and without abatement observed according to the Institute, and also wishes, nevertheless, that all its members should be secured, or at least assisted against the danger of falling into any sin of which the obligation of such Constitutions or Ordinations might give occasion; it has seemed to us in the Lord that with the exception of the express vow by which the Society is bound to the Sovereign Pontiff for the time being, and the three other essential vows of Poverty, Chastity, and Obedience, no *Constitutions, Declarations, or rule of life whatsoever should carry with them the obligation of mortal or venial sin* (*that is, should be binding under sin*) *unless the Superior should order these things in the name of our Lord Jesus Christ or by virtue of Holy Obedience;* which may be done in the case of things or persons, with respect to which it shall be judged that such order will conduce much to the individual or general good; and the love and desire of all perfection may take the place of the fear of greater offending; and that the greater glory and praise of Christ our Creator and Lord may result thereupon."

It will be observed that, even in this official translation, the two crucial difficulties of the Latin text (1) *obligationem ad peccatum mor-*

(1) The italics again are mine.

tale vel veniale inducere; (2) *nisi Superior ea,* have hardly been got over to our satisfaction. The first evokes an explanatory parenthesis. The second is left in its original obscurity: *these things* are not more luminous than *ea* in guiding us to what is said to be the real intention of the passage. I will proceed to quote from my informant's correspondence, a commentary on the general drift of the chapter. "You will see then, I think," he says, "that the object of this Declaration is to inspire the members of the Society with the desire of observing their vows and the rules of the Institute in the spirit of love and not of slavish fear; and that they may be inspired with this spirit as much as possible, it is declared that the rules and Constitutions of the Society do not bind under sin as the Vows do, being regarded merely as helps to the observance of the Vows: in other words, that the mere breach of the rules without sinful intention is not a sin. But when pressure may be required, and recourse to the spirit of fear necessary, power is given to Superiors in special cases to issue orders with the full and plain declaration that they are given under the obligation of being obeyed under pain of sin."

After these explanations, I am willing to accept the traditional and authorised interpretation of the article in question. It remains, however, to be greatly deplored that the important chapter was drawn up in language so obscure and misleading that even those initiated into its intentions are not able to furnish a clear and unambiguous translation of its phrases.

Ranke, after citing the words in *Cap.* vi. 5, which I have italicized above, goes on to remark: "A man can scarcely trust his eyes as he reads this; and, certainly, another meaning besides that suggested by the first perusal may be extracted. *Obligatio ad peccatum mortale vel veniale* may rather point to the binding force of the Constitution, which he who violates is guilty of 'mortal or venial sin;' but the words should be more precise, for no one could be blamed for seriously referring *ea* to *peccatum,* and not to *Constitutiones.*" [1]

Both grammar and logic seem to justify the deduction which I, together with Professor Philippson, drew from the chapter. I have already cited the three most important parallel passages in the institution S. J., which may be adduced to show that both logic and grammar must here be set aside.

The apology for my mistake does not, however, rest solely upon grammar and logic. The language used by S. Ignatius in the *Epistola de Virtute Obedientiæ* is so extraordinary as to justify any man in thinking that a zealous member of the Society might feel himself bound to commit sin under a Superior's orders. Such blind

(1) *History of the Popes.* Eng. tr. Bell & Daldy, 1866, vol. i. p. 168, note.

obedience is not demanded of a private soldier in a regiment. He exhorts the brethren *ut Christum Dominum in Superiore quolibet agnoscere studeatis, in eoque Divinæ Majestati reverentiam atque obedientiam summa cum religione præstare.*[1] Again: *Cum se Religiosus quispiam regendum ac moderandum alteri tradidit, non solum ut Superiori, sed etiam nominatim ut Christi partes agenti.* With regard to the sacrifice of the intelligence he says: *Qui vero se totum penitus immolare vult Deo, præter voluntatem, intelligentiam quoque offerat necesse est; ut non solum idem velit, sed etiam ut idem sentiat, quod Superior; ejusque judicio subjiciat suum, quoad potest devota voluntas intelligentiam inflectere.*[2] Again: *Altera est ratio, ut, quod Superior mandat vel sentit, defendere semper apud animos vestros studiose nitamini, improbare autem nequaquam.*[3] Again: *quidquid Superior præcipit, ipsius Dei præceptum esse et voluntatem.*[4] The member is to act *cæco quodam impetu voluntatis parendi cupidæ sine ullâ prorsus disquisitione.*[5] As an example, the founder of the Order cites the obedience of Abraham, who, when he believed that Jehovah commanded him to commit the crime of infanticide, was ready to fulfil that injunction.

Similar language abounds in the Constitutions. I will cite a famous passage from the *Summarium.* Those who wish to be perfect in Obedience should be ready to be governed and carried by their superiors *ac si cadaver essent, quod quoquoversus ferri, et quacumque ratione tractari se sinit: vel similiter atque senis baculus, qui ubicunque et quacumque in re velit eo uti qui eum manu tenet ei inservit.*[6] The orders of the Superior are to be performed *Omnem sententiam ac judicium nostrum contrarium cæcâ quâdam obedientiâ abnegando.*[7]

The *Exercitia,* that book of spiritual drill intended for the discipline of every novice, furnishes a pregnant sentence which, though not bearing directly upon the duty of obedience, exemplifies the utter and unconditional prostration of the reasoning faculties demanded from members of the Order. In the 13th of the Rules appended to the *Exercitia Spiritualia* we find submission to the Church thus inculcated: *Si quid quod oculis nostris apparet album, nigrum illa esse definierit, debemus itidem, quod nigrum sit, pronuntiare.* "If the Church shall have defined that to be black which to our eyes appears white, we ought to pronounce that the thing in question is black."

Resuming then these points, I find it to be an integral part of the Jesuit system that obedience should be paid to Superiors as though they were not men, but Christ or God. I find that not only will and

(1) Cap. iv. (2) Cap. ix.
(3) Cap. xvii. (4) Cap. xviii. (5) *Ibid.*
(6) *Summ. Const.* cap. xxxvi. (7) *Const.* vi. i. i. c.

affection, but intelligence and faculty of judgment also, must be sacrificed before the orders of a Superior. I find that no doubt or debate regarding a Superior's orders is allowed. I find that the inferior is held bound to obey blindly, to work himself by effort into harmony with his Superior's views, to adduce before the bar of conscience arguments in favour of whatever his Superior has thought fit to utter, and never in any way to cast reflections on those imperative commands. I find in the last resort that it is a member's duty to pronounce a thing black which is clearly white before his eyes, if the Church has said that it is black.

Such being the plain, emphatic teaching of the *Constitutiones*, of S. Ignatius in his Epistle, and of the *Exercitia Spiritualia*, what follows if a Superior commands the execution of a sin? What follows if, to quote the Biblical example adduced by Loyola himself, a Superior should command the murder of a child? The inferior must obey "with a certain blind impulse of the will, desirous of obeying without any effort of debate." He must suffer himself to be "borne and ruled like a corpse, like the staff in the hands of an old man." If he has doubts, he must do his best to bring his mind into harmony with the Superior's sentence, and must suffer no incrimination of that sentence by his faculty of judgment. The holocaust of his intelligence has been required of him, and in so far as he is a good member of the Order, he has made it; therefore no power of independent criticism remains with him. It seems obvious after all this that the saving clauses, *ubi peccatum non cerneretur, ubi definiri non possit aliquod peccati genus intercedere, omnibus in rebus quæ cum peccato manifesto coniunctæ non sunt*, lose much of their significance. For who is to discern, who is to define sin, except the Superior who orders? How can the inferior judge whether the command involves a sin or not if he has surrendered intelligence and the critical faculty? How can he defend himself against the obligation to commit an ordered crime, when the Superior whom he has undertaken to regard *in loco Dei*, enjoins an act similar to that required of Abraham by Jehovah? Who, finally, has any liberty of judgment left if he is bound to behave like a corpse or a walking-stick, and to maintain that what he clearly sees to be white is black?

Practically, I am now of opinion that the interpretation of *Const.*, vi. 5, accepted by the Order, in spite of its setting grammar at defiance, is the right one. I regret that I allowed myself to put what seemed to me the obvious construction on the passage, although I still feel with Ranke that "no one could be seriously blamed" for drawing that apparently obvious meaning from such more than ambiguous Latin.

But after making this avowal, after agreeing to put up with language so slovenly that it might be thought intentionally chosen to delude and bear a double meaning, we shall still be justified in doubting, from the general tenor of the illustrative passages I have cited, whether an inferior member of the Society of Jesus could exercise his judgment upon the ethical complexion of a Superior's commands. Those passages inculcate a passive submission, a deliberate sacrifice of the intelligence, which are incompatible with moral judgment. In order, furthermore, to show in what spirit the Society continues to interpret the word obedience, I will wind up with a fervent exposition from the pen of Aloysius Bellecius in a work approved and reprinted by the Society.[1]

"Secundo obedit *in omnibus*, quæ imperantur, etiam in iis 1. quæ jubentur cum periculo et jactura sanitatis et vitæ; 2. cum jactura honoris, existimationis, scientiæ, &c.; 3. cum jactura, ut videtur, majoris virtutis, majoris in speciem gloriæ Dei; 4. etiam tunc, quando partes, sinistræ affectiones, aut alia perversa animi motio in Superiore aperte dominatur: *Subditi estote . . . etiam dyscolis*, seu pravis, non tamen in re aperte mala; siquidem tunc valet illud: *Si justum est in conspectu Dei vos potius audire quam Deum, judicate.* Indubio autem *præsumptio* stat pro superiore."[2]

What is great and noble in the Society of Jesus, the spirit which has made its members such devoted soldiers and servants, appears here luminously. Peril and loss of health and life, of honour, reputation, science, and such things are to be faced without a question. The loss *majoris virtutis*,[3] whatever that may mean, is to be hazarded. Open partiality, sinister affections, or other perverse motions of the mind in the Superior, may not be urged in apology for disobedience. At this point appears the limiting clause: *non tamen in re aperte mala.* If the command be to commit manifest crime, it shall not be held binding; for God owes our allegiance before man. Yet if there be a doubt about the act commanded, the presumption is in favour of the Superior.

When we take into account the innumerable easements provided by the doctrine of probabilism, the concluding sentence of this exposition greatly diminishes the value of the limiting clause. Casuistry supplies an element of doubt regarding the majority of moral acts. An inferior, who is bound to contemplate Christ in the person of his Superior, who has yielded up himself as a dead corpse or a walking-stick, whose duty it is to conform his judgment by an

(1) R. P. A. Bellicii, S.J., S.S., Th. Doct. *Medulla Asceseos*, ed. sec., Monasterii Westphalorum, 1846.

(2) The italics are not mine.

(3) I am not able to attach a precise significance to the phrase *Cum jactura, ut videtur, majoris virtutis, majoris in speciem gloriæ Dei.*

act of will to the judgment of the Superior, cannot but feel that it is meritorious to remove from his conscience by the aid of casuistical determinations personal scruples regarding the sinfulness of conduct which has been commanded.

Far be it from me to assert, or even to suggest, that such is in fact and practice the result to which obedience leads in the illustrious Society of Jesus. I have only attempted to demonstrate that the overwhelming stress laid upon passivity, together with the casuistical system of ethics which the Society has so largely developed and applied, tends theoretically to invalidate such limiting clauses as *ubi peccatum non cerneretur, non tamen in re aperte mala.*

JOHN ADDINGTON SYMONDS.

*** *The Editor of this Review cannot undertake to return any Manuscripts.*